MECHANICS' MAGAZINE

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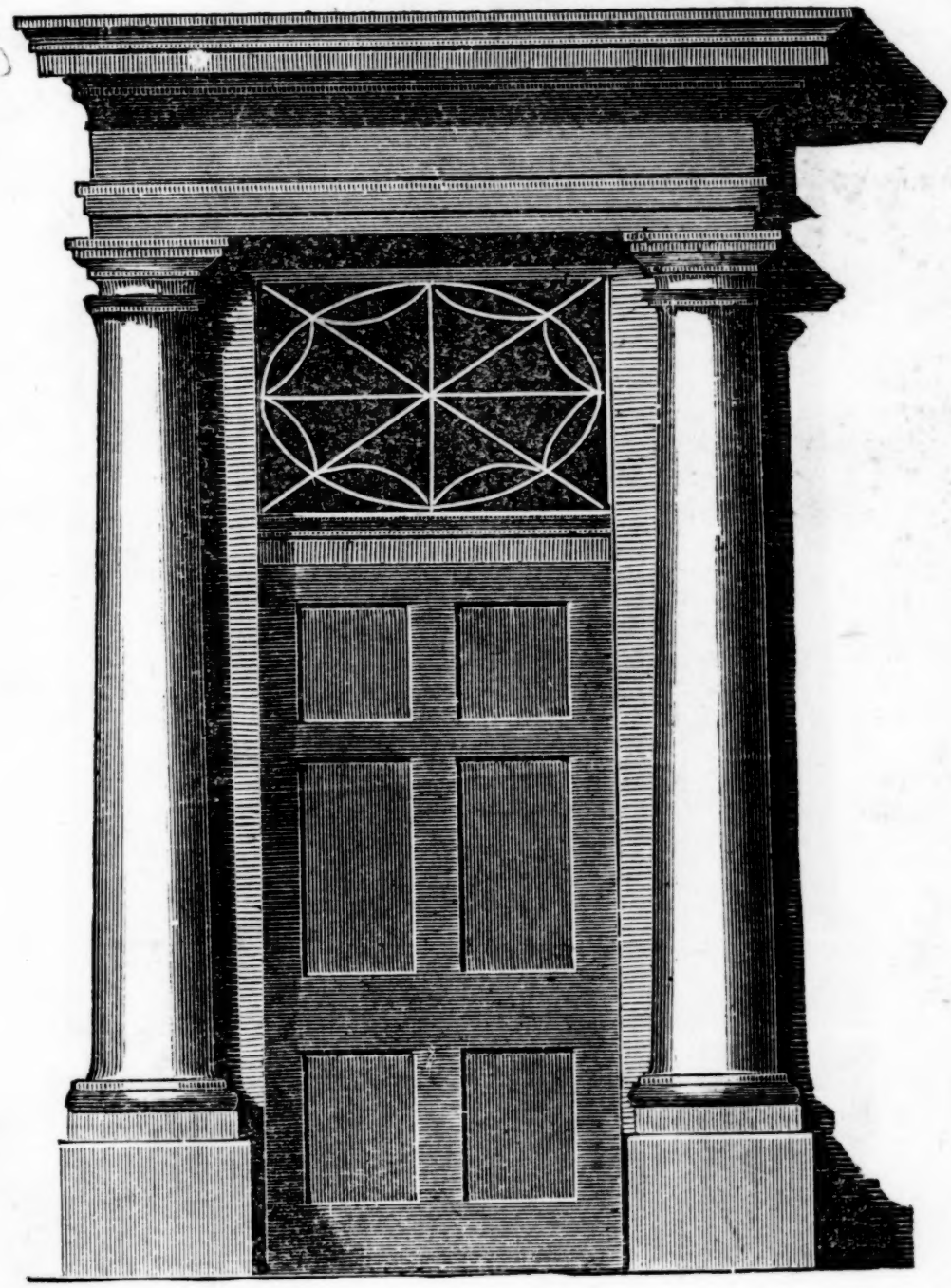
DOOR.

Plate 39.



THE STUDENTS' INSTRUCTOR

IN DRAWING AND WORKING

THE FIVE ORDERS OF ARCHITECTURE.

BY PETER NICHOLSON, ARCHITECT.

(Continued from page 208.)

DESIGNS FOR DOOR CASES.

PLATE XXXIX.

Is a design for a door-case of the Tuscan order.

DORIC ORDER.

Plate 40.

PLATE XL.

Is a design for a door-case of the Doric order.

IONIC DOOR.

Plate 41.

PLATE XLI.

Door-way and portico from the Ionic Temple, (see Plate XXVII.) That doors of this construction were used by the ancients is evident from the example of the Tower of the Winds, as shown by Stuart, in the Antiquities of Athens, vol. i.

The above are proper examples to draw from, and will give some useful ideas for composition and combinations of the orders, and their parts, and will look well if properly executed.

We lay before our readers the proceedings of the British Scientific Association, convinced that they will be perused with no ordinary interest.

The account of the Clifton Suspension Bridge will be carefully considered as we are now about to make a similar attempt.

The experiments of Mr. Cross have *electrified* the Scientific world. His discoveries are moved abroad with an activity that designates them as the most curious of modern times.

The results of the labors of this Association are pregnant with instruction to us and our Lyceums. We shall dwell upon this on another occasion.

BRITISH SCIENTIFIC ASSOCIATION.

CLIFTON SUSPENSION BRIDGE.—As soon as the time for holding the meeting of the Association was definitively fixed, the Trustees and Committee for building this bridge determined to take advantage of so great and interesting an occasion to lay the first stone of this structure, and this (Saturday) was the day chosen for the ceremony. On account of the tide it was necessary to appoint so early an hour as eight o'clock. In the absence of the Marquis of Lansdowne, the President of the Association, the Marquis of Northampton, who had officiated for that nobleman, during the meeting, consented to lay this stone. The morning was brilliant, and at six o'clock persons began to assemble on the rocks, and down from which any prospect of what was going on could be obtained. The ferry-boats were also put in requisition, and a fine harvest they must have had. It had been appointed that the Trustees and Committee, and those gentlemen who intended forming a part of the procession, should meet at the ferry-house on the Leigh-wood side at 8 o'clock; and tickets were issued for the purpose of admitting those gentlemen within the enclosure. The scene at half-past seven was very pleasing. There were a great number of steam-vessels in Cumberland-basin, and they all covered their ropes with colors of every kind. The gentlemen who intended to see the stone deposited now arrived very quickly, and a procession was immediately formed under the direction of Captain Claxton, who is certainly the most active man in Bristol, for we have seen him acting, and well too, as grand manager of almost every thing. The procession was formed in the following order, first—an immense number of flags, then a band of music, the Architect carrying the inscribed-plate, the trowel, and the mallet, after which the Trustees, the Committee, and the general friends of the present undertaking.—The Marquis of Northampton now approached in a carriage with six grays. As we ascended the steep hill the scene was most animated. On the opposite bank every window was filled, and an immense crowd lined the shore. On arriving at the entrance to the wood his Lordship descended from his carriage, and followed the architect Mr. Brunel, Jr., being close behind him.—From the trees in every direction were hung innumerable flags, belonging to the different ships in the harbor, and these continued until we came to an opening in the wood, which gave us a glimpse of such a sight as could no where else be seen. The beautiful down and rocks of Clifton were before us, and wherever a human being could stand that place was occupied. We here descended a long flight of steps, made sufficiently wide to carry four persons abreast, until we came to the stone itself. Around and above this were platforms and galleries, formed in so excellent a manner as to accommodate with comfort and safety all those who had obtained tickets of admission. We now had the full view of that which we had before only seen imperfectly. The height was such that we had a most expansive view, and so far as the eye could reach on either side, the ground, so far as was practicable, was covered by human beings, and we should think that all the respectable portion of the inhabitants graced the scene with their presence. The river was also covered with boats, the rowers being dressed in their regatta dresses. A number of coins, comprising every coin now circulated, from the double sovereign to the farthing, were deposited in an aperture made for them by the Noble Marquis.—His Lordship then placed the inscription-plate under the stone; on this stone the following were given as the dimensions of the bridge:—

Distance between the two points of suspension, - -	700 feet.
Length of suspended roadway,	630

Height of roadway,	-	230
Total width of floor,	-	34

His Lordship then covered this with mortar, and put the Act of Parliament for making the bridge, and a plate, being one of a breakfast set which Mr. Ivatt, of the Gloucester Hotel, had had manufactured for the public breakfast at his house this morning, having a representation of the bridge upon it, under the stone, which was then lowered to its ultimate place of destination. A trumpet was then blown, and the people on the Leigh-wood side gave three hearty cheers. The trumpet was blown again, and the cheers were responded from the opposite shore. A third blast, and the vessels below cheered. The Marquis then said, that it was his great pride and pleasure to come and lay the first stone of this magnificent edifice. In coming there he felt that the compliment had been paid not to him as an individual, but to the association of which he was now the humble representative, and he hoped the present moment would be the union of science and commerce. He would express a hope that that association might last as long as that edifice, and he trusted both would last to the end of the world. (Loud cheers.)—He would not conclude without proposing three cheers for Mr. Vick for his legacy; three cheers for Mr. Miles, for his gift of the stone; and three cheers for Mr. J. A, Gordon for his munificent donation. (Three cheers were given with great enthusiasm.) The procession then returned to Ivatt's Hotel, where a splendid breakfast was laid out, and where were met upwards of 300 friends to science, among whom we noticed the head of the association. Mr. Brunel did not cross the chasm on the iron bar as was anticipated, owing, as it was supposed, to the bar having been considerably twisted by its fall. A new bar is being made. Several votes of thanks were agreed to.

At the Meeting of the Association the same day, Professor Henslow and Mr. Davies Gilbert returned thanks to the various proprietors of manufactories who had so liberally thrown them open to the inspection of the members, the latter remarking that hitherto the prevalent and principal defect of such establishments was, that they were kept secret, whereas by the admission of men of science, he felt persuaded that suggestions would frequently be thrown out which might practically be acted upon with the best advantage. The Rev. Vernon Harcourt proposed, and Dr. Roget seconded, a resolution of thanks to the various distinguished foreigners who had honored the Association by their presence on this occasion. Baron Charles Dupin, of the Academie des Science, in acknowledging the above, expressed his gratification at that cordial feeling which existed between Great Britain and France in scientific objects. During the period of war with this country, whenever Sir Joseph Banks made an application to the French Government for the restoration of any man of science or Fellow of the Royal Society, he was always liberated. At the height of the war, likewise, the medal of the Royal Society had been voted to M. Malesherbes, one of his countrymen. He had paid a visit to Bristol about 18 years ago, and congratulated the meeting on the improvements which since that time had taken place, and in those efforts which she was the first to undertake of establishing a steam communication with America. The resolution was likewise acknowledged by Professor Hare, of Philadelphia, and Dr. Simon.—Various other resolutions were proposed, and after three cheers had been given to the President, the meeting adjourned.—[Times.]

Bristol, Aug. 24.—At an early hour this morning the number of members who had entered their names was 1,287, and which, from the advanced period of the week, may be considered nearly the total number of those who will visit the Association on the present occasion. The seetional rooms were all well attended, and several contributions of great interest were made. The interest to many of the ceremony of laying the foundation of the suspension bridge at Clifton, on Saturday, will be diminished by an unfortunate accident which occurred to the iron bar this morning. This gigantic rod had been safely drawn across the immense chasm over the river; but whilst the workmen were engaged in placing the end in its position, it fell down into the bed of the river, obstructing the passage, and the whole being so much bent as to render its restoration for the pre-

sent almost impossible. This accident was occasioned by the rope which was attached to it being cut through and giving way, and in its fall knocked dowh a scaffolding, by which one man was severely injured.

At the statistical section this morning, after a communication had been made by Mr. W. Creig on statistical desiderata, and on the deficiencies and errors of such reports in general, Dr. Lardner made some remarks on the effects of railroads in internal communications. The average of such as are in present operation, namely, Liverpool and Manchester, Newcastle and Hexham, and Dublin and Kingstown, showed an increase in the number of passengers of at least four to one. This great incrense was to be attributed not so much to economy of expense, as of time and exemption from fatigue as was shown in one instance, in which the cost was actually greater than before. A coincidence was exhibited in the canal boats between Edinburgh and Glasgow, in which the speed attained was ten miles an hour, and the cost had been reduced to one quarter of that of other modes of conveyance, but in which, the journey lasting longer, the passengers were proportionably few. On the Liverpool and Manchester Railway the expence of conveyance to each passenger, in the supply and repair of engines, average one penny per mile, whilst an experienced engineer has made a contract for four years to supply and maintain the carriages on the London and Birmingham line for one farthing per mile for each passenger. On the line now in progress between this city and the metropolis it was proposed to employ three separate trains; that for heavy goods to proceed at night; one for the conveyance of mails and a select number of passengers, in which it was not impossible that a speed of 50 miles per hour might be maintained; and the third for ordinary conveyance, at a speed of about 30 miles. Dr. Lardner also mentioned a fact respecting the employment of railroads in America, that notwithstanding all the navigable resources of the Hudson, it was in contemplation to establish a line of railroad on the banks of that river. Mr. J. Taylor read a paper replete with interesting facts on the statistics of mining in England, and Europe generally.

The evening meeting held at the theatre, was equally well attended with that of the preceding Monday. The Rev. W. F. Coneybeare, V.P., was in the chair. A letter was read from Sir J. Hershell, addressed to Sir W. Hamilton, giving a detail of some of his observations on the nebulæ, since his arrival at the Cape of Good Hope, which communication was forwarded by him for the purpose of being read at the meeting. Since his arrival in the country he had discovered a large collection of nebulæ of all sorts, descriptions of which he had forwarded to Professor Schumacker for insertion in his annual Ephemeris. The general aspect of the southern region he described to be of a high degree of richness and brilliancy from Orion to Antinous, presenting a blaze of light, with, however, a few patches which were destitute of stars. It was impossible to view this zone with the surrounding stars without an impression that the milky way was but an *annulus*, and that our own system was placed in the most desolate part. The Magellanic clouds presented curious objects, appearing as if they differed from other celestial phenomena, in a different degree of condensation in the stars of which they were composed. The great nebula in Orion was much more bright than when seen in our own latitudes, and the planetary nebulæ were numerous and highly characteristic, five of them being as sharply terminated as any planetary bodies, and it was not until after he had submitted one to many careful examinations that he was convinced it was not a new discovery. The clearness of the climate was shown by the fact that in 43 days there were only three in which Venus was not seen in broad daylight by an ordinary observer. Dr. Apjohn next read an abstract of the papers that had been read in the morning at the section for chemistry, one of which, by Professor Daubeny, on the nature and origin of thermal springs, elicited a considerable discussion, the former giving it as his opinion that they were always produced by latent or dormant volcanic action, and adducing the geological characteristics of those in this vicinity in support of the theory, and likewise advancing views respecting the productions of subterranean heat from chemical changes below the surface of the earth. In reply to these observations, and in support of the

ordinarily received views of central heat, Professor Philips gave several instances of investigations recently made on the subject at various depths, and with instruments provided for the purpose by the Association. In a mine at Newcastle, 280 yards below the surface, the external atmosphere averaging 47½ deg., the thermometer stood at 64 deg., being an augmentation of nearly 1 deg., for every fifteen yards, a proportionate average which in a variety of other cases was almost the same. In a mine at Manchester, 337 yards below the surface, the external atmosphere being 49, the thermometer stood at 62 ; in a salt mine, 112 feet deep, 52 deg., whilst on the surface it was 47 ; and in a mine near Bristol, within the last few days, 170 yards below the surface, the external atmosphere being 42 deg. it stood at 64 deg. Mr. Taylor in support of these views, gave a recent instance of examination in a pit, 1,740 yards deep, in which the temperature was 97 deg. At the conclusion of the discussion, the arrangements for the ensuing day were announced and the meeting adjourned until Friday.

Aug. 25.—The varied engagements which have occupied the attention of the members throughout the whole of the week do not appear in the slightest degree to have weakened their interest,as was displayed in the continued full attendance at the sectional meetings this morning. In consequence of a contemplated botanical excursion to-morrow—one to Portshead in a steamer provided gratuitously for the occasion—this section prolonged its sitting this afternoon, and terminated its proceedings for the present session.

At the statistical section an interesting communication was made by Prof. Forbes on the relative height, weight, and strength of the Belgian, English, Scotch, and Irish nations, the comparison being the least favorable to the former, and the most so to the latter. The experiments from which these deductions were made were conducted from those made by Professor Queteler at the meeting of the Association in Cambridge, the average height of the Belgian was stated at 5 feet 7 $\frac{8}{10}$ inches; English, 5 feet 9 inches ; Scotch, 5 feet 9.$\frac{8}{10}$ inches; and Irish, 5 feet 10 $\frac{1}{10}$ inches. [These proportions seems to us considerably exaggerated.] The strength of the Belgian was also less than that of the English by 50 lb. ; in every case of experiment, 25 years being taken as the age of maturity. Baron C. Dupin whose name has so long been known in connection with English statistical inquiries, next exhibited two maps of this kingdom, in which the several counties were shaded according to the denstity of population and proportionate criminality. The deductions formed from his inquiries into the latter were as follows :—He calculated six different degrees of density of population to 1,000 acres.—Firstly, 100 inhabitants to 1,000 acres ; secondly, 218 ; thirdly, 465 ; fourthly, 555 ; fifthly, 1,100 ; and sixthly, which is in highly populated counties, such as Middlesex, 7,000 inhabitants to the 1,000 acres. In the first district, the proportion of offenders to the population would be 1 to 2,963 : in the second, 1 to 1,427 ; in the third, 1 to 593 ; in the fourth, 1 to 550 ; in the fifth, 1 to 498 ; and in the sixth, 1 to 558. In Ireland the same proportionate regularity did not exist, as there society was not in such a state as to allow the laws to be fully developed ; and although the population was more condensed there was less crime in the north than in the south, owing to the more industrious habits, the greater degree of education, and comfort of the inhabitants. Some curious comparisons were next given of the relative ages, of criminals in England and France, in which the proportion of juvenile offenders was much greater in this country.—Some curious facts were also stated respecting *the relative proportion of crime in the sexes of different ages*, which exhibited the following ratio. Before the age of 12, the proportion of males to females was 1,869 to 1,000 ; from 12 to 16—1,600 to 1,000 ; 16 to 21—1,560 to 1,000 ; 20 to 30—1,623 to 1,000 ; 30 to 40—2,400 to 1,000 ; 40 to 50—2,712 to 1,000 ; and 50 to 60—2,822 to 1,000, whilst above that age again it became less, being 2,267 to 1,000. In the different degrees of crime, likewise, averages had been made which were in favor of the female sex, the number in proportion being 2,836, to 10,000 ; assaults, 2,204 ; manslaughter, 890 ; robbery on the person, 800 ; and robbery attended with violence, 511. *The influence of instruction on the mass of the people* he considered to be a term which was often misapplied, as when moral it could not but have a good effect, but if physical it

was alike hurtful to the bad character, as it was beneficial to the good. Some curious returns were also made, exhibiting the proportion of criminals at different ages in this country and France; in Great Britain, this being greater in the juvenile and less in the ages above maturity, which might be attributed to the operation of several causes.—Whilst in England a great proportion of the younger criminals were transported from the country to settlements where the majority remained for life, in France, after some years confinement and restriction, they were thrown again upon the community as professors of criminality. Another point was urged in favor of the morality of the youthful criminals of this country, though decidedly not so in favor of the parents, that many chi dren being sent out by them to pilfer when young, returned to habits of honest industry when their age placed them without their control. The various facts elicited showed that a very favorable change had taken place in the late improvements of the English Criminal Law, by which many penalties were altered, and that of death was in many instances taken away. The proportion of convictions to acquittals had also latterly been greater, which demonstrated that the laws were administered with more propriety and greater discrimination. Thanks were voted to Baron Dupin by acclamation for his information.

The Geological Section has, as usual, been an object of atttracion to-day. Much was expected from a paper of Mr. Fox, of Penzance, on the change of mineral substances by galvanic action, as results of long observation and experiment; and Mr. Fox produced an experiment, of materials coarsely put together but yesterday, in which, with sulphate of copper and sulphuric acid, he gave new characters to some lumps of metal by the galvanic arrangement. Dr. Buckland, the President, referred with exultation to Mr. Fox's apparatus, which consisted only of a blacking-pot, 1½d., a partition between the fluids of clay, and a pennyworth of sulphate of copper and sulphuric acid; and then, turning to a plain country person, he stated that he should now astonish the whole world by bringing forward the unparalled discovery made by him with a pail of water and a brick with a hole in it. He then handed to the table a Mr. Cross, a resident of the Quantock Hills, whose name is consecrated to future fame as the author of the greatest discoveries ever made in chemical and mineralogical science—discoveries which will create an entire revolution in the pursuits of science. Mr. Cross presented himself with evident embarrassment, and then stated that for many years he had been a devotee to experiments in electricity aud galvanism. That he had generated galvanic action in hundreds of different ways, and with all sorts of materials. That he now discarded acids from his combinations as rubbish, and, to use his own expression, produced his most perfect results and mutations of the products of nature, with the clean material of water, combined with sufficient lime. The multitude of his combinations, and the months and years in which he left them to work, his disappointments, and often their "spiteful results," formed a most diverting narrative. But when he described his production of regular crystals, his quartz which scratches glass, and his germs of various metals from powdered stones, the bursts of applause rent the air. Many distinguished men of science expressed their delight with acclamations, and the President was the most rapturous in his gesticulations. It appeared that his happiest creations are made in the dark, and that the action of light disturbed the delicate means by which nature works under ground. He also stated, as a general fact, that the intensity of all electrical action is a maximum, or high degree, from 7 to 10 in the morning, and at a minimum from 7 to 10 in the evening, the one ten times greater than the other. It would be tedious to follow honest Cross any farther, since, in a few days, large numbers of the Association propose to visit him, to see his apparatus and the results. The distance is 42 miles, but this will be no obstacle to hundreds now in Bristol. Professor Sedgwick, and a foreigner present who spoke English admirably, had, it appeared, visited Cross, and their accounts increased the interest of his narrative, and confirmed the veracity of his statements. Seventeen years ago, the Professor visited him, on a geological ramble, and found electrical apparatus of an extent and variety which

filled him with astonishment. Many of the wires, etc., extended twenty miles in length, and the terror of his machinations in the neighborhood has been, for years, a security for rabbits, birds, game, etc. Cross's announcements have eclipsed all other business of the day in the other sections, though the same activity has prevailed in all of them. There were some fine experiments on Electric Magnetism in the Philosophical Section, but all past electricity sinks in interest before the new modes of generation, and the results, by Cross.

In addition to that from Liverpool, a deputation from Norwich is in the city, in order to invite the association to pay a visit to that place next year, and, to give strength to its appeals, is accompanied by a Prebendary, who brings with him the cordial wishes and sympathy of the Venerable Diocesan. This, along with the various other matters, will be decided on Monday night.

The iron bar across the Avon has today been replaced in its position, but has been so much twisted in its fall as to render the anticipated flight across the river scarcely possible. Among those present were Mr. S. Rice and his son.—[Chronicle.]

A meeting, which was very numerously attended by members of the Association, was held this morning at the Theatre of the Institution in Park street, T. Wyse, Esq., M. P., in the chair, for the purpose of forming an educational section, which, although not connected with the Association, should hold its meetings at the same time and place as the latter. Resolutions were passed in favor of the proposal, and observations made in furtherance of the objects by the Rev. Dr. L. Carpenter, Rev. E. Stanleys, Dr. Jerrard (the Principal of Bristol College,) Dr. Taylor, etc. The committee was also formed, and it was decided that the first meeting should be held in Liverpool on the Saturday preceding the commencement of the next meeting of the British Association in that town.

The following is a list of the various grants of money, etc., for the advancement of particular branches and objects of science, which were awarded on Saturday, as also of the various recommendations made by the several sectional committees, and approved by the committee of record:—

Section A.—Mathematical and Physical Science:—£50 for the discussion of observations on the tides, at the disposal of J. W. Lubbock, Esq.—£150 for observations on the tides in the port of Bristol, to Rev. Mr. Whewell.—£70 for the deduction of the constants of lunar notation, under the direction of Sir T. Brisbane, Dr. Robinson, and Mr. Bailey.—£30 for hourly observations of the barometer and lock bull hygrometer. Mr. S. Harris.—£100 for the establishment of meteorological observations on a uniform plan, and experiments on subterranean temperatures, under the direction of the Committee of last year, reduced to Rev. Professor Powell, W. S. Harris, Colonel Sykes, and Professor Phillips.—£500 for the procurement of data depending on very accurate measurements of points situate in two straight lines at right angles to each other, for the exact determination of the question of the permanence or variability of the relative level of land and sea. Committee—Messrs. Greenhough, Lubbock, Mackenzie, Whewell, Sedgwick, Stevenson, Robinson, Bayley, Griffith, Colly, Cubitt, Portlock, and De la Beche.—£100 for experimental observations of the form of wave, as influenced by the effect of winds, and the effect of the form of a canal, and the manner in which the wave is produced. J. Robinson, Esq., Secretary; R. S. Edin, and Mr. J. J. Russel.—£500 for reductions of the observations in the Histoire Celeste, and vol. 9 Acad. des Sciences, 1789 and 90. Messrs. Lubbock, Airey, Baily, and Dr. Robinson.—£100 for experiments on vitrification. Drs. Turner, Farraday and Rev. V. Harcout.—£80 for the construction of a rock salt lens. Sir D. Brewster.

Section B.—Chemical and Mineralogical Science:—£50 for researches on the speficic gravity of gasses. Drs. Henry, C. Henry, and Dalton.—£15 for researches on the components of atmospheric air, Dr. Dalton.—£30 for researches on the quantity of heat developed in combustion and other chemical combinations.—£24 13s. for the publica-

sion of tables of chemical constants. Professor Johnston.—£60 for researches on the strength of iron made with hot and cold blasts. Messrs. Fairbairn and Hodgkinson.

Section C.—Geology and Geography:—£20 for experiments on the quantity of mud suspended in the waters of rivers. Rev. J. Yates, Messrs. De la Beche, and G. Rennie.—£30 for special researches on subterranean temperature and electricity. Mr. R. W. Fox.—£50 for researches on the nature and origin of peat mosses in Ireland. Col. Coleby.

Section D.—Zoology and Botany:—£25 for experimental observations on the growth of plants under glass, and excluded from the air, according to the plans of Mr. Ward. Professor Henslow.

Section E.—Medicine:—£50, renewed grant to the committees appointed to investigate the subject of the anatomical relations of veins and absorbents.—£50, renewal of a grant to the committees appointed to investigate the subject of the motions and sounds of the heart.—£25 for researches into the chemical constitution of the secreting organs. Drs. Rogot, Hodgkins, and Turner, and G. O. Rees, Esq.—£25 for investigations on the phisiological influence of cold on man and animals in the Artic regions. Mr. B. King.—£25 renewed grant for the investigation of the effects of prisons on the animal economy. Drs. Roupell and Hodgkin.—£25 renewed grant for the investigation of the pathology of the brain and nervous system. Drs. O'Beirne, Green, Macdonald, Messrs. R. Carmichael, Adams, and O'Smith.—£25 for the investigation of the phisiology of the spinal nerves. Drs. Harpey and Broughton, and E. Cock, Esq.

Section F.—Statistics:—£50 for inquiries into the actual state of schools in England, considered merely as to numerical analysis. Colonel Sykes, and Messrs. Hallam and Porter.

Section G.—Mechanical Science:—£50 for an analysis of the reports of the duty of steam-engines in Cornwall.—Messrs. J. Taylor, G. Rennie, and Cubitt.

Reports in Science.—Section A.—Captain Sabine to communicate a continuation of his report on the magnetism of the earth.—Mr. Lubbock to report to the next meeting the result of the deliberations of a committee appointed to consider his proposition for the construction of a new empirical lunar table. The committee appointed being the Astronomer Royal, Professors Rigaud, Challis, and Sir W. Hamilton; F. W. Bailey, and J. W. Lubbock, Esqrs.

Section B.—Professor Johnston to report on the present state of knowledge of the chemical and physical properties of some peculiar bodies.

Section C.—J. Taylor, Esq., to report on the mineral riches of Great Britain and Ireland.

Section D.—Mr. Yarrell to report on the present state of knowledge of ichthyology.

Section E.—Rev. Mr. Taylor, of York, to report on the various methods of printing which have been proposed for the use of the blind.

Recommendations of Researches, etc.—Section A.—That Captain Sabine's magnetical observations on the west coast of Scotland form part of the next volume.—That application be made to the French Government for a copy of the best tide observations.

Section B.—That experiments be made on the effects of long continued heat upon different bodies.—That the various products escaping from the chimneys of foundries and manufactories be examined.

Section C.—That the attention of the members be called to the discovery of plants of any kind in the late rocks of any age, older than the coal formation.—[Times.]

British Scientific Association.

Bristol, Aug. 29.—Although the majority of the members who have attended during the past week are now hurrying away from the scene of their activity, there were many remaining to-day to participate in the entertainments which had been got up expressly for them—the one being a grand horticultural show, provided by the Horticultural and Botanical Society; and the other a grand regatta, under the patronage of the mayor and

corporation, in which the races continued from 11 o'clock in the morning until 7 in the evening. The former, which was of an interesting character, considering the time of year, was a very fashionable promenade, at which most of the botanical members were present; and the latter was made the opportunity of a grand gala day by the citizens at large. A steamer sailed this morning for Cornwall, with many geologists on board, who received an invitation from Sir. C. Lemon, Bart., to pass some time at his seat, which is in the vicinity of the places of meeting.

Foreign Intelligence.

It is with the most poignant regret, says the *Manchester Guardian*, that we announce the death of one of our fellow townsmen. Dr. Henry, whose name must be familiar to all our readers, died by his own hand yesterday, at his residence in Pendlebury, near this town. For some time past, we understand, he had been in a very indifferent state of health, and had occasionally labored under great nervous irratibility. His indisposition seems to have been considerably increased by the excitement consequent upon his attendance last week at the meeting of the British Scientific Association at Bristol, from which he returned with a considerable aggravation of the symptoms he had previously exhibited, and we understand that he suffered under an almost total privation of sleep, which appears to have finally overpowered his faculties. Yesterday (Friday) morning, about five o'clock, he left his bed and went into his dressing-room, and he was at length found in the private chapel, attached to his house, quite dead, having shot himself with a pistol, the report of which had not been heard by any of the family.—(Globe.)

Amongst the railways connected with the metropolis, the Birmingham, Bristol, and Thames Junction railroad is the only one that communicates directly with the western parts of London, branching off from the London and Birmingham railway, at about 5 miles N. W. of its terminus at Somer's Town. It will convey passengers and parcels by a direct and short cut to Kensington, Chelsea, Westminster, and all the West end. Also, to Lambett, Southwark, etc., whilst the heavy goods will be taken by barges to all the wharfs and warehouses on the Thames, from Chelsea to the London Docks, by means of the Kensington Canal, which has been purchased. The Act of Parliament is obtained, the direction is appointed and organised, the line of road is staked out, most of the lands purchased; and it is expected that such progress may be made in the works during the ensuing winter, as will enable the Directors to commence business simultaneously with the London and Birmingham, and Great Western Railway Companies. It is also proposed to apply to Parliament in the ensuing Session for an Act to extend the line of railway from the Hammersmith Road to Knightsbridge, near Hyde Park Corner, for which purpose surveys and estimates have been made, and the project has the concurrence of several of the principal proprietors on the line.—(Sun.)

M. de Gerstner, an engineer who recently visited England and Belgium with the view to study the iron railroad systems, he being charged to execute two lines of road from St. Petersburgh to the Royal Palaces in the environs, published on his return a report in four different languages to the number of 25,000 copies. He proposes to make an innovation in the construction of the steam-carriages, which consists in placing an apparatus in front of the engine, which will clear the rails in case they are obstructed by stones, snow, or ice.

At the works of R. Stephenson and Co., at Newcastle, there is now constructing a locomotive engine for the Emperor of Russia, for a railway six feet in width, and the wheels of which engine are six feet in diameter, and the speed is guaranteed to be 40 miles per hour. The engine is destined to travel between St. Petersburgh and the Emperor's country palace.—(Standard.)

A gentleman exhibited on Saturday a novel description of boat on the Serpentine. It consisted of oil cloth, and, upon being opened, assumed the form of a very beautiful boat. He crossed the water, and afterwards rowed up and down with astonishing rapidity.—(Herald.)

The subterranean passage for the Saint-Germain iron railroad under the village of the Batignolles, to the plain of Clichy, is

complete, and the wagons now pass through it.

It is stated that a land proprietor of the province New Russia has sent, as a present to the Emperor Nicholas, an amethyst, found in the mines of Siberia, weighing 7 pouds, or 280 lbs. It is the largest that has ever been seen in Russia.

The great bell at Moscow, which has lain embedded in the earth for upwards of a century, has been lately raised, repaired, and placed on a pedestal, after receiving a fresh benediction in the presence of an immense concourse of people. It was founded by order of the Empress Anna Joannowa, and is the largest in the world, its diameter being 23 feet, its height 21 feet, and its weight 12,000 Russian *pouds*, or 480,000 lbs. French.

We long since stated that a commission had been sent to England and Scotland with a view to examine the superiority of the iron cannon manufactured there over the brass ones at present used in the French service. The report was, we learn, favorable, but the Government have resolved not to determine the question until after a course of experiments made under the direction of a commission appointed for that purpose. They have invited the Swedes and English to the trial, with nine cannon of different dimensions cast after patterns sent from France. The Belgian Government having judged that Belgian iron would well bear the competition with that of England and Sweden, has also entered the field as a competitor, and several cannons cast at Liege have been sent to La Fere, where they are to be proved.

Much curiosity has been excited in Oxford by repeated trials of an invention intended to regulate the speed of carriages when descending a hill, by means of which the coachman can instantaneously or progressively lock both the hind wheels. The apparatus was applied to a four horse stage, which was loaded with passengers, and, on ascending and descending a hill, was found to answer all the purposes intended. The inventer then proposed that the coach should be taken down the hill without the horses, and it was frequently stopped while proceeding at the rate of twelve miles an hour. Many practical gentlemen had ample proofs of the principle of the invention by having the coach lifted up, and the two hind wheels allowed to turn free on the axle, when it was found that a two-pound weight, placed on the extremity of the wheel, would gently bring it round, but when the first degree of retarding power was applied, it took a weight, so placed, of fifteen pounds to bring it gently round ; the second degree thirty-six pounds ; the third degree fifty-six pounds ; and the fourth degree three-quarters of a hundred ; but with this weight no one person was capable of moving either wheel on its axle. Mr. Pearson, organist, of this city, is the inventor.—(Oxford Herald.)

The annual meeting of the Polytechnic Society was held on Tuesday in the Great Hall, Falmouth. Valuable specimens, both of science and art, were exhibited at this meeting. Sir C. Lemon, the Member for the county, who had announced the day of the meeting at Bristol, and courteously offered hospitality to any of the members of the British Association, who might feel inclined to attend, he did not take the chair ; he insisted on that honor being bestowed on our revered fellow-townsman, Davies Gilbert, Esq., late President of the Royal Society. He also took the chair at the dinner, to which all the strangers in the town, and all the members of the learned societies in Edinburgh, Manchester, and London were invited. Amongst the visitors present we noticed Mr. Enys, of Popman Castle ; Rev. Messrs. Buckland, Mackie, Stanley, Macauley, Punnett, and Cox ; Col. Sykes ; Professor Powell, of Oxford ; Dr. Fowler, of Salisbury ; Mr. Delabeche (the illustrious geologist) ; Mr. Fox (whose discoveries by the action of the voltaic battery, created so intense an interest at Bristol); Messrs. Denton, Thackeray, Meadows, Hay, Maddock, Dickinson, Ellis, Doyle, Wilson, etc.—(Falmouth Herald.)

An eminent London firm of engineers has received orders for the execution of two steam-engines of 200 horse power, for the huge steam-vessel now building in Bristol for trans-Atlantic communication, and which, it is expected, will be completed in the course of the ensuing summer. That now executing at Liverpool for the same

voyage will only contain one of 270 horse power.—(Herald.)

One of the last analyses of the celebrated chemist, Vauquelin, proved the existence of a considerable portion of iodine in silver ore. This excited the astonishment of the chemists and mineralogists, who had no notion of this mineral being imbedded in ore, though they believed that it came from Mexico. M. Arago has applied to some young Mexican officers, who have lately arrived in Paris, for information on the subject, and has learnt, more particularly from M. Yniestra, that it is a well known fact in Mexico that the mineral in question comes from the mine of Albarados, in the mountains called Cetto-Temerosa, and that iodine is also found connected with the ore of corbonated lead ; and, moreover, it has been discovered in two plants which grow far from the sea, namely in an aloe, called in that country *Sebila*, of the genus *Magrey*, and in a species of barilla, which grows in the floating islands of the fresh water lakes near Mexico, which the inhabitants eat as a salad.

M. d'Averat has announced to the Geographical society, that a French traveller is on the point of setting off to explore the antiquities of Mexico.

Extract of a letter from Boulogne, dated Aug. 31 :—" For the last month this town has been the scene of continual amusements, in consequence of the number of visitors who daily resort here from England by the General Steam Navigation Company's vessels, who have reduced their fares from London to Calais and this port to five and four shillings, and on board of which they are sure of meeting with every accommodation, and the greatest civility, a rather rare article for travellers. All the hotels and lodging-houses will reap a good harvest this season, as they are well filled, and many private families who have hitherto never let out an apartment have now up at their windows " *Des jolies appartements a louer.*" Balls and private musical parties, or *converzasiones*, are given every evening by the most fashionable residents. Those of Mr. Hamilton, the British Consul, have been very fully attended. We have twice or thrice a-week a sailing or rowing match between the 'young sparks' to Calais and back, which is rather a novel scene to the French inhabitants, as in this country they have no idea of regattas or rowing matches, aquatic sports not being their *forte*. The following is about the number of English over in France, viz :—

Paris, Versailles, St. Cloud, St. Germain, and environs - - -	20,000 to 25,000
Boulogne-sur-Mer and environs - - -	10,000 to 12,000
Calais, the Basse Ville, and environs - -	5,000 to 7,000
St. Omer, Cassel, and environs - - -	1,300 to 1,700
Dunkerque, Bergues, and environs - -	1,500 to 2,000
Dieppe, Havre, Rouen, Caen, Tours, Marseilles, Bordeaux, etc. -	6,000 to 7,000
Total about - - - -	54,500

Admitting that each person spends, on an average, 5s. per diem for board and lodging, etc., it would be £12,625, and the annual sum spent in this country by the English alone would be about £4,608,125. This does not include the number of Continental, tourists who pass annually through France to Italy, Switzerland, Germany, the Rhine, Belgium, and other parts, of which no official return is published.—(Post.)

Antiquities and Curiosities.—The collectors of relics will perhaps feel interested in the subjoined statement of the prices paid within the last few years for various objects of historical curiosty :—The *ivory-arm-chair*, presented by the city of Lubeck to Gustavus Vasa, was sold, in 1825, to the Swedish Chamberlain, M. Schmekel, for the sum of 58,000 florins.—The *prayer-book* used by King Charles I., when on the scaffold, was sold in London, in 1825, for 100 gnineas. The *coat* worn by Charles XII., at the battle of Pultawa, and which was preserved by Colonel Roson, who followed the King to Bender, was sold, in 1825, for the sum of 561,000 francs. A fragment of the coat worn by Louis XVI. at the alter, was announced in the catalogue of a sale in 1829, and would probably have fetched a very high price but it was withdrawn. The Abbe de Tersan paid a very high price for *a pair of white satin shoes* which had belonged to Louis XIV. A *tooth* of Sir Isaac Newton was

sold in 1816 for the sum of £730. The Nobleman by whom it was purchased had it set in a ring, which he constantly wears. Apropos of teeth, it may be mentioned, that at the time when the bodies of Heloisa and Abelard were removed to the Petits-Augustins, an English gentleman offered 100,000 francs for one of Heloisa's teeth. At the sale of the library of Dr. Soarman, at Stockholm, in 1820, the *skull* of Descartes sold for a considerable sum. Voltaire's *cane* was some time ago sold in Paris for 500 francs. An *old wig*, which had belonged to Kant, the German philosopher, was sold, after his death in 1804, for 200 francs. A *waistcoat* belonging to J. J. Rousseau was sold for 950 francs, and his metal watch for 500 francs. In 1822, Sterne's *wig* was sold at public auction in London, for 200 guineas. In 1825, the *two pens* employed in signing the Treaty of Amiens were sold for £500. The *hat* worn by Napoleon at the battle of Eylau was sold in Paris, in 1835, for 1,920 francs. It was put up for sale at 500 francs, and there were thirty two bidders. There was at Pezenas an *arm chair*, which is said to have belonged to Moliere, and to which tradition has given the name of the *Fauteuil a la Moliere.* Its form bears evidence of its antiquity. When Moliere was living at Pezenas, he was accustomed every Saturday afternoon to repair to the shop of a barber, named Gely. This shop was the resort of all the idlers and gossips of the town. There politics were discussed, and the *historiette* of the day repeated from mouth to mouth. The large wooden armchair above alluded to stood in one corner of the shop, and it was a sort of observatory to Moliere, who, when seated in it, attentively watched all that was passing around him. This old chair is now about to be sold in Paris, and will, no doubt, soon fill a place in some collection of curiosities.—(Court Journal.)

The following is the greatest experiment in Ballooning that we recollect.

Not much is to be gained by increasing the size of a balloon, but we are not among those who would discourage experiments in this line.

When skilfully conducted there must result some benefit to science.

THE STUPENDOUS BALLOON.

On no previous occasion in the annals of aerostation has public curiosity been so strongly excited as on that of the ascent of this "Great Leviathan of the Air," which took place yesterday afternoon from Vauxhall-gardens. Long before the doors were opened a large number of persons were in waiting for admission, while every avenue to the surrounding neighborhood poured forth its hundreds, anxious to catch a view of this unparalleled wonder. Of the size of this balloon our regular readers are already aware; but for the benefit of those who may not recollect it we reprint the following from the prospectus issued on the occasion:—"The balloon is 157 feet in circumference; and the extreme height of the whole, when inflated, and with the car attached, is 80 feet. It is formed of 2,000 yards of crimson and white silk, imported in a raw state from Italy expressly for the purpose. It contains 70,000 cubic feet of gas. As a matter of curiosity, it may be stated, that the inflated silk will sustain an atmospheric pressure of 20,433,600lbs., or 9,122 tons. The network which envelopes the silk is of hemp, and the car of basket-work; the grapple, or anchor, is of wrought iron, and will be attached to an elastic Indian rubber cord, from the factory of Mr. Sievier. This will prevent in a great measure, any sudden jerk in stopping the balloon in rough weather, whereby so many accidents have occurred." We may add, that the silk is exceedingly thick in the fabric, and wove in a peculiar manner. The gores are united by a cement of a nature so tenacious as to prevent all chance of separation. On the doors being thrown open, the balloon was found to be already one-half inflated, the process, from the extraordinary size of the machine, having commenced as early as ten o'clock. About two a sudden change took place in the weather, and from that hour until past four it rained incessantly; but the ardour of the lovers of aerostatics appeared to be nothing daunted by the untoward occurrence, for they flocked into the gardens regardless of the "pelting of the pitiless storm," many elegantly dressed women not even opening their parasols to shield them from the rain, for fear of obscuring their view of the balloon. By a

little after two o'clock the balloon was nearly two-thirds filled, and raising its enormous crown, waving gracefully amidst the foilage of the surrounding trees, began to exhibit its extraordinary dimensions to the view of the spectators, who were loud and unanimous in their expressions of admiration at the magnificent spectacle which it presented. Shortly after four o'clock a favorable change appeared on the face of the heavens, at which time it became apparent the inflation was nearly completed, the balloon having assumed the form of an immense pear. About half-past four o'clock, the rain having subsided, preparations for the ascent were commenced; they however, occupied nearly two hours, the power of the balloon several times raising a large party of the L division of police, who had hold of the netting, from the ground, and notwithstanding near 30 half hundred weights were also attached by ropes to the stupendous machine. The inflation was under the direction of Mr. Hutchinson. The peculiarly heavy state of the atmosphere produced a weight of condensed air upon the surface of the balf loon of nearly half a ton, but so excellently had every thing been arranged, and so highly rarified was the gas, that the balloon was sufficiently buoyant to have taken up 20 people.

At five o'clock a large party of the nobility and gentry were admitted by tickets within the arena, where the inflation took place. Among them were the Duke and Duchess of Beaufort, Lord Worcester, Sir W. Abdy, Col. Stanhope, Pembroke-house; Lord H. Chichester, Captain Phillips, Lord Graham, Mr. Cosby, Lord Coventry, Rear-Admiral Sir Tremayne Rodd, Mr. R. Trever, Mr. J. J. Clarke, Mr. Rice, Captain Hall, Lord Palmerston, Lady Codrington, Eaton-square, and party; Count d'Orsay, Lord Sunderland, Lord George Lennox, Lady Pellew, Mr. Joseph Jennings, King-street, Portman-square; Mr. Collet, Capt. Beauford, Admiralty; Mr. Wrottesley, Blackheath; Mr. H. F. Downes, Muswell-hill; Viscount Exmouth, George-street, Pall-mall, Mrs. Groves, Hyde-Park-terrace, Cumberland-gate; Mrs. W. Snoxell, Earl and Countess of Charleville, Prince Lieven, Count Tobstoy, etc. Shortly afterwards the car, which on account of the weather had been stripped of its splendid purple velvet covering and gilded eagles' heads, was brought forward with only a covering of scarlet cloth, and attached to the ring to which the ropes of the netting had been previously fastened. Twenty-four bags of ballast, each weighing fourteen pounds, were put within it, as were also six carrier pigeons and a number of other articles. Notwithstanding some trifling delays, the work of inflation was complete by five, and preparations commenced for attaching the splendid car to the balloon; some further delay occurred in this part of the operations, owing to the shower which had fallen previously having caused the netting by which the car was suspended to the balloon to contract, so that there was considerable difficulty in making the car hang level; this, however, was at length effected, and the adventurous aeronauts, under the directions of Mr. Green, sen., the veteran aerial navigator, who on this occasion made his 221st voyage, proceeded to take their seats in the car. It was then found that there were more candidates for the passage than there were berths in the ship, and the selection of his fellow-voyagers was, as a matter of course, left to the discretion of the commander, who issued his orders for the following persons to come on board—namely, Mrs. Green, Mr. E. Gye and Mr. Hughes, jun., sons of the proprietors of the gardens, Captain Currie, the gentleman who had so frequently been the companion of the unfortunate Mrs. Graham, a gentleman a friend of Lord Coventry, whose name was understood to be Williams, Mr. Green, jun. and Mr. Holland, who had so earnestly solicited a passage, and offered to pay so liberally for the accommodation, that his application became irresistible, and he was consequently entered on the ship's books, and took his station on the deck. The full complement of eight able-bodied was thus made up, when a voice was heard; exclaiming in urgent but at the same time tuneful accents, "Take me: I will not be left behind:" when it was discovered that Miss Green was the supplicant who thus urged her petition. Some objections were urged by those who had already been admitted on board; but Mr. Green, on discovering that it was his favorite niece who was thus excluded, declared that "Mary Ann" should accompany him. This had

nearly bred a mutiny in the ship, when the Hon. Col. Stanhope, who was on the ground, called out "Five to one on Mary Ann." This opportune declaration of opinion had the desired effect, and the lady was immediately admitted to the honour of the sitting, a place, though not without difficulty, being found for her. This point settled, all that remained to be done was to try the power of the machine to perform the task assigned to it, when it was discovered that so predominant was its buoyancy that had the car been capacious enough to have afforded the accommodation, the balloon would, with ease, have sustained the burthen of several additional passengers; and previous to its being loosened from the ropes, by which it was apparently most reluctantly confined to our lower region, Mr. Green felt it prudent to permit a considerable quantity of gas to escape, and thus to reduce its power of ascension. All things thus prepared, the interest became intense; every spectator showed by his countenance the anxiety which he felt for the situation of the aeronauts. No praise can be too great for the coolness and presence of mind displayed by Mr. Green in this somewhat trying situation. He gave his directions in a manner which inspired the crew of his comparatively frail vessel with confidence in his management, and, as it were, anticipated their security from accidents and dangers. The ascent was most magnificent; directly the word was given to cast off the last rope by which the balloon was restrained, it shot with velocity from the earth, and mounted high in mid air, in the direction towards Tunbridge, shifting its course from east to south-east. The shouts of the multitude, and the clang of the instruments of the military band which was stationed in the grounds, accompanied its flight. The aeronauts waved their hats and flags, and continued rapidly to rise. A grander sight can hardly be conceived. At least from 6,000, to 7,000 persons were present in the Gardens, in defiance of colds and rheumatism. This is certainly the most surprising ascent of a balloon that ever took place, whether the dimensions of the machine, the number of persons ascending, or the excellent manner in which every thing was arranged, be considered. It is the largest machine of the kind that has ever been constructed, and the only one, with a single exception, in which more than two or three persons have ventured to elevate themselves *in nubibus* from *terra firma*. The balloon in which the Duke of Chartres and three other individuals (two of whom were brothers, named Roberts) ascended, on the 15th of July, 1784, from the Park of St. Cloud, measured 55½ feet in length, and 34 in diameter; but this balloon is 157 feet in circumference, and between 70 and 80 in perpendicular height. Had it not been for the extreme wet, there is every reason for believing the ascent would have taken place much earlier than it did, and that the balloon would have started at four, the hour fixed for the purpose, instead of a quarter-past six. The balloon, with its nine passengars, descended near Cliffe, in Kent, at half-past seven. Mr. E. Gye, with Mr. Holland, immediately proceeded to Gravesend in a cart, and having despatched a man to the spot where the machine lay, came up to town in a post-chaise without delay, leaving Mr. Green, with the other passengers, in charge of the balloon. On the outside of the gardens, long before the hour appointed in the bills for the ascent, an immense number, amounting, we should suppose, to 50,000 persons, had collected. Millbank, the bridges, the parks, and almost every elevated spot throughout the metropolis, from which a view of the balloon, on its rising from the earth, could be obtained, were crowded by persons anxious to witness the novel spectacle of so large a number of persons traversing the aerial regions in a bark so fragile as a wicker-work car. The inflation is said to have cost the proprietors £70, though before the ascent Mr. Green found it necessary to let at least a fourth of it escape. When fully inflated, this stupendous machine had a graceful and magnificent appearance, to which its gay colors and splendid car added not a little.—(Globe.)

Yesterday Vauxhall Gardens were thronged with company upon the occasion of another race taking place between two balloons, it being stated that Mr. and Mrs. Green would ascend in one, and Mr. and Mrs. W. Green in the other. It was calculated that between 4,000 and 5.000 persons were present; among whom were the Marquis Clanricarde, Lords Fitzclarence, Hill G. Lennox, etc.; the Hon. L. Stanhope, some gentlemen attached to the

Turkish Embassy, and several foreigners of distinction. About the time of the ascent, the Marquis of Clanricarde intimated to Mr. Green his intention of accompanying him on his ærial voyage. His wishes were instantly complied with. At a quarter past six, the Noble Lord stepped into the car attached to the balloon, with Mr. Green, Mr. and Mrs. Green having previously taken their seats in the other. Every thing being prepared, the æronauts launched their respective baloons, which rose majestically in a perpendicular elevation, there being scarcely a breeze to propel them to either side. At a short distance from the earth they changed courses, one going to the east, the other towards the south. They then retrograded their motions and crossed each other; the effect produced an instantaneous shout of applause from the spectators on *terra firma*. In continuing to rise they again passed each other, moving very slowly; and fears, which happily were not realized, began to be entertained lest at that height they might come in collision. At their greatest elevation they took a southerly direction, Mr. C. Green, with the Marquis Clanricarde, descended at five minutes past seven, at about a mile on the London side of Farningham, in Kent; and arrived at Vauxhall Gardens at half past ten, where the Noble Marquis joined a party of friends who were waiting his return, and appeared highly delighted with his novel trip. Mr. W. Green and his wife, with the other balloon, alighted about three miles further from town, without any thing remarkable having occurred. Mrs. Graham, accompanied by Captain Currie, ascended about the same time from the inclosure at Sadler's Wells Theatre.—[Globe.]

There has recently been discovered at Chalons-sur-Saone, a sarcophagus of the middle ages, composed of a single block of very friable free-stone, hallowed out, and covered with a slab of artificial stone, compounded of chalk and sand. It contained the skeleton of a man who, when living, must have been above six feet English in height. The bones are in a good state of preservation. There were three pieces of coin, one of the empire, bearing the date of 106; the other, in silver, being a croisillon, the date of which has not been mentioned; and the third, in copper, the size of a liard, bearing on one side the head of Charlemagne, wearing a dentated crown, and surrounded by a legend, of which the letters C. M. D. are only legible. On the reverse is a knight holding a lance in his left hand, and a gauntlet in his right. The garden in which it was found adjoins the ancient abbey of San Pierre.

Dr. Arnott's New Stoves.—At a meeting of the Philosophical Society of Edinburgh, which took place lately, one of Dr. Arnott's new stoves was exhibited. It is an oblong box, about 3 feet long, 2 broad, and 2 deep, carefully made air tight on every side. A partition within divides it into two parts, apertures above and below enabling them to communicate with each other. An aperture is arranged for the free admission of air, and another for carrying on the smoke; an air tight door admits fuel. A stove made of earthenware, and placed on one side of the partition, contains all the fuel required, and the hot air circulates round and round the partition before it is eventually carried off by the small tubular chimney. An extensive surface of 32 square feet is thus presented to the air at a moderate elevation of temperature, about 212; and accordingly, scarcely any thing passes up the chimney which has not been almost entirely exhausted of its heat. This stove saves equally time, trouble, and fuel, and is quite free from the dust of a common fire.

Dr. Reid's System of Ventilation.—At the conclusion of the same meeting, the Society adjourned to a new apartment, constructed by Dr. Reid, illustrative of his arrangements for ventilation, &c. It is 32 feet long, and 18 broad, the floor being pierced with 50,000 apertures for the admission of air. A series of experiments have since been commenced in it, in one of which, intended to show the working of the flues, 100 individuals remained in it for upwards of an hour, the room having been alternately filled with warm and cold air, and partially charged with ether and nitrous oxide, at different times. The air was completely renewed by a slow and insensible current every five minutes, and the various changes so gradually induced, that it was impossible to tell when they commenced.—The plan is equally applicable to public buildings and private dwelling-houses, as well as to hospitals, churches, public assemblies, and all those places where, from a crowded apartment, the air becomes oppressive both from heat and noxious effluvia.—[Scotsman.]

Thames Tunnel.—A special meeting of the proprietors of this Company was held yesterday, at the City of London Tavern, B. Hawes, Esq. in the chair. The Chairman stated that he felt great pleasure in informing the meeting that the engineer had advanced 60 feet further

under the river since the introduction of the new shield, making upwards of 700 feet in the whole. The success of the undertaking was placed beyond a doubt, as there was a good hard ground to proceed with the work, they had to use a machine weighing 140 tons, propelled under a pressure of 3,000 tons under the bed of the Thames, it was not desirable to proceed too rapidly, but, on the contrary, that every step taken should be regulated with care and caution. Mr. Charlier, the Company's clerk, then read the report to the meeting. It stated that when the stoppage in 1828 took place, it was occasioned by no difficulties of an engineering nature, but solely from the original capital of the company being exhausted. At that time 599 feet out of 1,300 feet were completed, for the sum of £120,000 only. The new shield had fully answered its purpose, and had enabled the work to proceed through some portions of the ground in almost a fluid state. The report concluded by stating that the Directors continued their unabated confidence in Mr. Brunell, and reiterated their opinion that at no very distant period this great undertaking would be completed. The Chairman stated that since June, Mr. Brunell had been able to proceed with the works at the rate of four and a half feet per week. When he was able to go on at the rate of five feet a week, the expense of the undertaking would be less than the estimate sent into Government, (Hear, hear,) and in a short time he had no doubt but that the work would be proceeded with at the rate of eight or nine feet per week. The Clerk then read the accounts, from which it appeared that in June there was a balance in hand of £3,000. The Chairman said that previous to June, Government had advanced them £30,000, and since that, £10,000 in addition; and the probability was, that another £10,000 would very shortly be advanced. The report was unanimously adopted.—(Times.)

Effects of Cold.—We had seen, says Capt. Back, in his account of his Arctic Expedition, the thermometer at 70 deg. below zero, at which time the aurora was bright. We now made a few experiments on the effect and intensity of the cold, the results of which were as follow:—With the thermometer at 62 minus, a square six inch bottle of sulphuric æther, with ground stopper, was taken out of the medicine chest exactly in the same state as it had been packed at Apothecaries' Hall, viz., with stopper down, and exposed immediately below the registering thermometer on the snow. In fifteen minutes the entire upper surface of the sides of the bottle was coated with ice, and a thick efflorescent sediment covered the bottom, while the æther generally appeared viscous and opaque. After having remained an hour, during which the temperature rose to 60 minus, it had scarcely changed, or perhaps, as Mr. King agreed with me (Captain Back) in thinking it was more opaque. The bottle was then carefully brought into the house and placed on a table within 4½ feet of the fire; and though so near, and with a temperature of 32 deg. plus, it did not recover its former clearness or purity for 42 minutes. A bottle of nitric æther, similar in dimensions to the sulphuric was not changed in the same time; but after two hours exposure it also became viscid, the temperature in the mean time having varied from 60 to 56 minus. A fluid drachm and a half of sulphuric æther was put into an ounce and half bottle, with a glass stopper, and when it had become viscous, the stopper was withdrawn, and a light applied, when it ignited with an explosion, and an escape of gas. On repeating the experiment, the ignition did not take place till the light was brought into contact with the liquid; but it was accompanied by a similar explosion. A small bottle of pyroligenous acid froze in less than 30 minutes at a temperature o-57 deg. minus, as did also the same quantity of one part of rectified spirit, and two of water, one part of the same, and one of water. Leeward Island rum became thick in a few minutes, but did not freeze. A mixture of two parts pure spirit and one part water froze into ice in three hours, with a temperature from 65 to 61 deg. minus. Another mixture of four parts spirit and one part water became viscid in the same time. A bottle of nitric æther, having been out all night, was thick, and the bubbles of air rose

slowly and with difficulty; the mean temperature, at 6 A. M., January 17th, being 70 min. A surface of four inches of mercury, exposed in a common saucer, became solid in two hours, with a temperature of 57 deg. minus. On the 4th of February the temperature was 60 deg. minus, and there being at the same time a fresh breeze, was nearly insupportable. Such, indeed, was the abstraction of heat, that, with eight large logs of dry wood in the fire place of a small room, I could not get the thermometer higher than 12 deg. minus. Ink and paint froze. I made an attempt to finish a sketch, by placing the table as near the fire as I could bear the heat, but a scratchy mark and small shining particles at the point of the table convinced me that it was useless. The sextant cases and boxes of seasoned wood, principally fir, all split. Nor was the sensation particularly agreeable to our persons: the skin of the hands especially became dry, cracked, and opened into unsightly and smarting gashes, which we were obliged to anoint with grease. On one occasion, after washing my face within three feet of the fire, my hair was actually clotted with ice before I could dry it.—[Courier.]

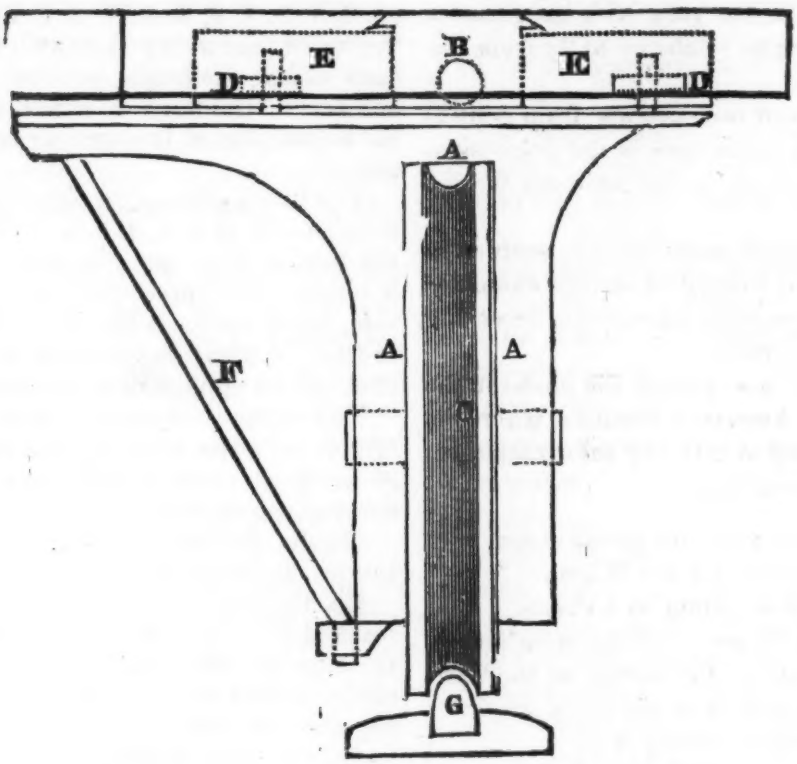
M. Biot.—The learned and scientific M. Biot has been delivering some very remarkable lectures at the College de France.—He has proved, that, by means of polarised rays, it is possible to ascertain the chemical action which takes place between bodies held in solution, in various liquids; an action which has not yet been discovered by less delicate means. This is a new branch of science, created as it were by this great natural philosopher, from which the most important and curious results may be expected.

Spontaneous Combustion.—An instance of spontaneous combustion is reported in the French papers, to have taken place at Annay, in the department of Avalon. A very fat woman, aged 74 years, and addicted to drinking brandy at 27 degrees, lived alone, and one evening returned home as usual, but, as she did not appear among her neighbors the next morning, they knocked at the door. No answer being returned to repeated demands, they summoned the mayor, who forced the door, and exposed a horrible spectacle, accompanied by an extraordinary smell. Near the chimney laid a heap of something burnt to cinders, at one end of which was a head, a neck, the upper part of a body, and one arm. At the other end were some of the lower parts, and one leg, still retaining a very clean shoe and stocking. No other traces of fire were to be seen, except a blue flame which played along the surface of a long train of grease, or serous liquor, which had been produced by the combustion of the body. The mayor found it impossible to extinguish this flame, and summoned all the authorities; and, from the state of the apartment and comparison of circumstances, it was concluded among them, that previous to going to bed, for which she had evidently been making preparations, the woman had been trying to ignite some embers with her breath. The fire communicating with the body by means of the breath, combustion probably took place, and would appear to confirm an opinion entertained by several learned men, that that which is called spontaneous combustion of the haman frame never takes place without the presence of some ignited body near the person predisposed to combustion. A surgeon who bled an habitually drunken person, accidentally put the blood extracted near a candle, when immediately a blue flame appeared on the surface, which he found extremely difficult to extinguish.

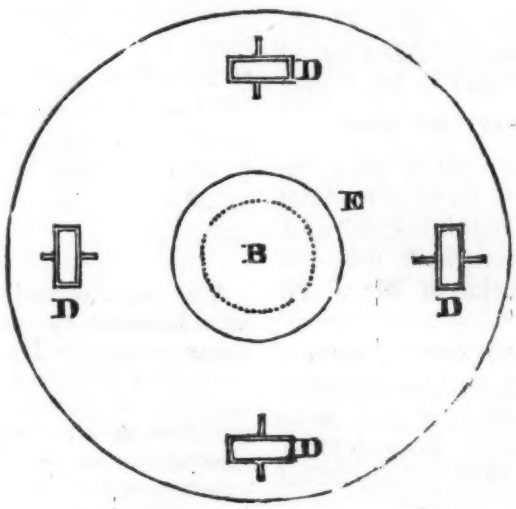
We lay before our readers the cut and description of the improved wheel for Railroad Cars invented by Dr. Plantou of Baltimore.

The simplicity of its arrangement and the advantages proposed to be gained therefrom are so obvious as hardly to require further explanation.

The intention of the inventor is to dispense with the axletree and thus remove the cause of a long train of accidents consequent upon the breaking of this part of the Car. By this means he considers that in adding to the safety of railroad transit he has removed one of the greatest objections to this mode of conveyance.



Top view of the metal plate E.



The inventor also considers that the situation of the center of gravity in relation to the point of support, is another advantage in the machine.

He also considers that the liability of a car to be thrown from the track is greatly diminished in this form of car, that the wheels have a tendency to counteract the effect of any obstacle, to throw them off, at the same time that their freedom of motion corrects the swinging motion produced by any inequality in the rail.

This leads us to another advantage claimed by the inventor, and one, too, of first importance.

It is the superior capacity for turning short curves which this wheel possesses over every other, adapting itself to every degree

of curvature in the rails with the greatest ease and having no tendency to fly from the track.

We have seen testimonials from gentlemen of much experience in the profession, giving great credit to the inventor for his ingenuity.

The advantages proposed, are such as to render the plan worthy of serious examination, as any guarantee for safety is deserving of the highest credit.

Dr. Plantou has placed his model in the rooms of the American Institute where he would be happy to give any information respecting his invention.

DESCRIPTION OF THE ENGRAVINGS.

A The standard for the Wheel.
B Neck of ditto acting as a Pivot.
C Grooved Wheel working in the fork A.
E Metal plate at the bottom of the Cars.
D Friction rollers in the metal Plate.
F Side braces to steady A.
G Rail with rounded edges.

RAILWAY TRANSIT AND INLAND NAVIGATION.

(*From the Times' Report of 2nd Days's Proceedings of the Bristol Meeting of the British Association, August* 22, 1836.)

IMPROVEMENT IN NAPIER'S RODS.

In the section of mechanical science, Mr. Hawkins read a paper on an improvement upon Napier's rods, for facilitating the multiplication of high numbers with little liability of error, the invention of Mr. J. N. Copham, of Bristol.

The invention consists in cuttiug each of Napier's rods into cubes, and in stringing the cubes together by means of pins passing through two perforations in each cube, made at right angles to each other parallel to the figured sides.

By this arrangement the cubes may be readily placed in such positions in respect to each other that the product may be obtained by addition only, without the necessity of transcribing the figures from the rods previous to the addition, thus avoiding a great liability to error, and effecting a saving of time in the calculation.

The pins are in two sets with heads of two different shapes.

On the heads of one set of pins are marked 0. 1. 2. 3. 4. 5. 6. 7. 8. 9. respectively, the same pin having the same number on each side of the head; but the number on one side of the head is inverted in respect to the position of the number on the other side.

The heads of the other set of pins are also numbered 0. 1. 2. 3. 4. 5. 6. 7. 8. 9., but the pin having 0. on one side of the heads, has 9. on the other side; that having 1. on one side, has 8. on the other, &c. The figures in this set, also, are inverted in respect to those of the opposite side of the head.

The cubes are kept strung on those pins which have the same figures on each side of the head: 10 cubes on each pin representing one of Napier's rods.

On the pin marked 0. all the cubes are marked 0. on both sides.

On the pin marked 1. the cubes are marked 0. 1 2. to 9. on one side, and 9. 8. to 0. on the other side. The numbers on the two sides of each cube, on being added together, make 9.

On the pin masked 2. the cubes are marked 0. 2. 4. 6., &c. on one side, and 18. 16., &c. on the other. The numbers of the two sides of each cube, on being added together make 18.

And thus the numbers on the cubes of each pin are all consecutive multiples of the numbers on the head of the pin; and the two numbers on each cube on being added together make the number on the head multiplied by nine—the numbers ascending on one side, and descending on the other.

The popular notion that all the weather is influenced by changes of the moon, is controverted by Dr. G. Emerson in a lecture lately delivered before the Franklin Institution of Philadelphia, a notice of which we find in the Baltimore American. He assumes it as incontrovertibly proved by experiments of Mr. Dalton, that the watery vapor from which rain is formed, owes its elevation and suspension in the atmosphere in an invisible form entirely to heat, deprived of a due proportion of which by any enfrigerating cause, it is condensed and falls to the earth in the form of rain, snow or hail. The conditions of wet and dry weather are, consequently to be regarded as regulated solely by temperature; and on the other hand it has been clearly shown by experiment that the presence and light of the moon cannot produce the slightest effect upon temperature.

Meteors of Nov. 12th and 13th.

Much discussion has arisen in the scientific world upon the question of the yearly appearance of this phenomenon.

At present we believe that but few attempt to deny the fact. It is in our power to prove the fact from personal observation.

While off the port of Pernambuco in the year 1832, the writer of this article witnessed a similar display to that of the night and morning of Saturday and Sunday last. The fact was registered in his journal, but the date was not remembered until two years after, when the subject excited considerable attention—on a reference to the diary the date was found to be Nov, 12th and 13th. This being a year before the famous "shower of stars," another link is added to the chain of evidence.

During the night of Saturday and morning of Sunday last, we kept a careful lookout, and at last were well rewarded for the trouble.

It may not be out of the place to state here, that from 8 o'clock in the evening til day break, constant flashes of lightning, it is supposed, were seen in the east; precisely like what is called heat lightning in summer.

At 9 o'clock, a very beautiful column of Auroral light shot up in the N. W., of a pinkish hue, and continued for 6 minutes. During the whole night there was a strong but ill defined light in the north.

The temperature of the air was moderate, the wind right from the west, and the deposit of dew very great.

The air was of unusual transparency, and the stars shone with increased beauty. Thus a fine opportunity was afforded for observation, and at a season when such nights are not frequently seen.

A few meteors were noticed through the evening, but at 2 o'clock on looking out, several were seen to cross the Great Bear in rapid succession, several leaving behind them a trail.

From this time till daylight constant observations were made.

From 2 o'clock till 3 o'clock, 98 meteors were counted.

From 3 o'clock till 4 o'clock, 150 were seen.

The enumeration was continued until over 300 were seen, and then no farther account was taken. About 400 in all were seen.

Of these the greater number were large and exceedingly brilliant, leaving a trail of some length and going off with a sort of explosive appearance. The resemblance to a rocket was perfect.

The trail remained in some instances for two minutes.

It was very soon seen that all these meteors had a course divergent from some common point, this point was ascertained and its place confirmed by observations during the whole night. At times the remaining trails of 3 or 4 meteors would clearly indicate its place. The position of this point was in Leo, Dec. 21° 30′ N., R A 150.°

Not more than two or three very smal meteors (such as are seen during any night) were observed to deviate from this course, excepting one or two of greater size which appeared to describe in a short space, a semicircle.

Those meteors that originated near to this point of radiation, appeared to pass over less space and to move more slowly—in fact the impression was irresistible, that the meteors all had the same direction toward the spectator and being seen in prospective appeared to radiate from the point.

Jupiter and Mars in the early part of the night and afterwards Venus afforded opportunities for comparison as to brilliancy of light. These planets are in favorable positions, and Venus in particular is very brilliant—but they were all eclipsed by the light of several of the meteors—one in particular for outshining Venus—to a casual observer it would have seemed a brilliant rocket set off at a short distance.

From the position of the observers, facing the N. E. is it probable that not more than half of the meteors were seen—from which

it may be estimated that over 1000 appeared in the course of the night.

The dawn was one of surprising beauty, the pearly day light melting it to a deep rich blue in the zenith and being lost in a clear orange brown in the horizon. Jupiter and Mars in close vicinity over head, Venus in the clear light, and Sirrus with the stars of Orion in the deep blue. Even the brilliant meteors shot through the day light close by Venus, still exceeding her in splendor.

The appearance of the phenomenon was in all respects similar to that witnessed by the writer two years ago, the number of meteors that appeared then was perhaps greater.

This curious phenomenon is one of great interest to us, it being first observed and its annual re-appearance first conjectured, if we are not mistaken, in our country.

It is desirable that all the information on the subject should be collected, from this body of evidence, new light may be thrown upon the subject.

Durability and Preservation of Timber.—This is one of the most important subjects to which the attention of Engineers and mechanics can be directed. Until recently the causes of decay in timber had been unknown and uninvestigated, *dry rot* being as great a bugbear to the artisan and engineer as hydrophobia to the *leech* in our bustling inquisitive days, the true course and treatment of both of these diseases have been earnestly and carefully investigated, with more success however in the case of the vegetable than in that of the animal.

Our readers must be well informed of the methods proposed from time to time—some more and others less successful. Lime stands foremost on the list—as a corrective to fermentation and acidity, it is undoubtedly useful. We saw recently a remarkable instance of its preservative powers recorded in one of our exchanges.

A platform had been used for mixing mortar and had been continued in the same place (on the surface of the ground in an exposed situation,) and in the same use for nearly sixty years. At the end of that time the ground being wanted for other purposes the platform was directed to be removed, and as it was grown over with weeds and covered with a film of soil it was supposed that it would crumble to pieces. To the surprise of those removing it, they found it to be perfectly sound as much so as if it had been recently made from sound timber.

In this case however the preservative effect is rather to be ascribed to the mortar acting as an indurated covering, than to the lime penetrating the fibre of the wood. Both causes however may have operated in conjunction to produce an effect that neither would have accomplished unaided by the other.

But the most efficient preventive to decay is *corrosive sublimate* used in solution. This is now well known in Europe as Kyan's process. It has been introduced with constant success into the different Naval establishments in Great Britain, and large tanks are erected for the purpose of soaking the timber of any size.

The cost of this preparation is not great and when the importance of the object in view is considered, much money will be saved by it.

It was found upon trial that sail cloth exposed to damp and close air, after having been prepared resisted the mildew while unprepared cloths placed in the same situation fell to pieces.

It was objected to the introduction of this process that the corrosive sublimate being a vinelent poison, would endanger the lives of those living in the vicinity of article so prepared. It was found however by one of the best chemists of the day, that after soaking in water until no more sublimate could be obtained even from stuffs of the finest texture, that the preservative effects were still the same.

In fact he found that the corrosive sublimate had entered into a sort of chemical combination with the vegetable fibre, by which it was in a manner neutralized.

To us it is a matter of astonishment that so little attention is paid to the preserva-

tion of timber in our country. It is true we have a vast region of forest yet untouched by the axe—but these cannot last forever, and moreover no pains are taken to renew them when removed.

The immense quantities of timber used in our public works should direct attention to the durability of the material employed—as a failure in certain parts may cause the destruction of the whole. An instance of this in one of the Southern Railroads is well know. The rails were supported upon piles without any embankment—when after a short time it was found that the timber was disposed to a peculiar rot, rendering the road liable to accidents of the most serious consequence.

Though Wood enters largely into the structure of most of our railroads—we do not think that sufficient provision has been made for its durability, and we most earnestly desire to see the subject thoroughly sifted, and experiments made with a view to some specific preservative process.

The application of *corrosive sublimate* is certainly worthy of trial—the effects of coal-tar and other proposed preservative should also be examined.

The question as to the propriety of wooden pavements for our strees, and also for the roadway of suspension bridges is now seriously discussed. The only objection of force is the liability to decay in most kinds of wood when exposed in a vertical position, the moisture entering in the direction of the fibre, and finding its way easily to the very heart.

We have no doubt of the efficacy of Kyan's process in this case, and recommend the trial as of the greatest importance.

A very interesting and exceedingly useful subject of inquiry is the comparative value of our different kinds of timber in different situation, some remaining sound while constantly under water or earth, while but few stand alternate exposure, some remain sound longest in one soil while others are to be preferred in a soil of different nature.

This is a wide field and will richly repay those who labor in it, while the benefit to result from such investigation is a sufficient stimulus.

SUBSTITUTE FOR LIGHTHOUSES ON THE SHORES OF THE BLACK SEA.

TRANSLATION OF A NOTE ADDRESSED TO THE BRITISH AND OTHER FOREIGN AMBASSADORS AT CONSTANTINOPLE, IN DECEMBER, 1829. BY COL. MACERONI.

From the highest antiquity, the Black Sea has had the melancholy celebrity of being the most dangerous of all those which have been, or ora at present, frequented by navigators! Thus it was named by the Romans, "Axenus" *sive inhospitalis.* The nature and the direction of the winds which predominate—the formation of its costs and shallows—of its very ports and its atmosphere—present innumerable dangers, even in summer; in the winter these perils are augmented a hundred-fold! Since the 1st of last November, no less than eleven out of twenty-three vessels, which have sailed between this port and Odessa, have been miserably lost!

By the aid of lighthouses placed on dangerous places, or at the entrances of harbors, the navigation of ships in the vicinity of shores is greatly aided during the darkness of the night. But unless such lights be sufficiently refulgent and *elevated*, and unless the atmosphere be sufficiently clear to permit of the lights *being seen at a sufficient distance*, it often happens that the unhappy sailor does not discover them in time to avoid the dangers which they indicate, or to enter the harbor of which they announce the entrance!

The dangers of the Black Sea are greatly enhanced, and indeed mainly consist, in the dense and sudden fogs which cover its surface. It would be very easy to account for the formation of these fogs by referring to the currents of cold air, which, suddenly rushing from the north-east, meet the warm and moist atmosphere confined within the mountainous margins of the Black Sea.—But this disquisition is not to my purpose, because no remedy can be offered for an exhibition of the laws of nature depending on geographical features of locality. The fact is, that whenever a north wind blows, especially in the autumn and in winter, the Black Sea is covered with an almost impenetrable mist. The course of a vessel

steering from Odessa to Constantinople is from north to south. If a strong wind prevails, and the mouth of the Bosphorus be missed, owing to mist or darkness, the rounding of the southern coast causes the unhappy vessel to find itself almost immediately with a lee-shore a-head, upon which it rarely escapes being driven and totally lost!

It is absolutely necessary that the entrance of the Bosphorus should be recognised *at a very considerable distance*, because if it is overshot, with a strong north wind blowing, perdition is sure to follow. The amount of lives and of property annually lost in this way is truly appalling! Twenty-seven vessels, and their crews, have thus perished since I have resided in this capital! It seems that, when in a gale of wind from the north (always accompanied by a mist) if the entrance of the Bosphorus be once overshot, there is no further hope.—The low, shelving southern coasts of the Black Sea offer no other refuge, or none can be discerned.

To the evils above sketched out I propose to apply a palliative. Lighthouses are admirable constructions; but they are expensive, and require time to erect. Moreover, on a low coast it is not easy to give them that degree of elevation which will ensure their being descried at a sufficient distance. Besides which, the case is urgent, and a remedy is called for *at this very moment*, while we daily and hourly receive the afflicting accounts of loss of life and property to an enormous amount.

The expedient which I propose is the use of rockets, projected vertically in the air during a storm, from such points as it is essential to designate to the bewildered navigator. A six-pounder rocket, properly made, will rise above 1000 yards perpendicularly in the air. At that elevation the head or pot is made to burst, and about half a pound of combustible composition, of a most refulgent brightness, is detached from the rocket, and burns suspended in the air for about one minute. This light is far more intense than any of the lamps of the best lighthouses; and its very superior elevation (being *thirty times* higher) causes it to be perceived at a much greater distance. Moreover, its sudden appearance, and the manner of its combustion, can never allow of its being mistaken for some fire on a mountain; and the same suddenness strikes more attention than any fixed light whatever. By means of a little parachute, invented by Sir W. Congreve, the cage containing the refulgent light is suspended in the air so as to fall a very few yards during the period of its combustion. I have discovered a composition which gives much more light than any hitherto used.*

Depots of such rockets should be formed at the necessary points, only to be sent up on the occasion of a storm by night. One may be fired every five or ten minutes; and as the number of stormy nights in the year does not average more than thirty, and that not during the whole night, the consumption of rockets would not be an expense of national importance. When rockets are projected from more points than one, the locality may be indicated by a difference in the color of the light. Some may give a red, a green, a white, or a blue light. To cover the expense, a small tax or toll might be exacted from all vessels navigating the Bosphorus and the Black Sea; which I suppose they, or their respective Governments, would gladly submit to, in consideration of the great advantage received. I am ready to give directions and exhibit experiments. to prove the merits of my plan quite gratuitously.

(Signed) MACERONI.

From the Poggendorf Annalen.

PRODUCTS OF THE DISTILLATION OF PIT COAL.

By F. F. RUNGE.

From the oil of pit coal rectified over oxide of copper, three bases and three acids are partly separated, or are partly formed, which differ in their chemical properties from any substances hitherto observed.

BASES.

1. *Cyanol* (blue oil) is a volatile substance almost destitute of any peculiar smell, neutralizing acids and forming salts which partly crystalize. It produces in a solution of muriate of lime a blue color, which is removed by an excess of chlorine. The salts of cyanol dissolve in solutions of muriate of lime, producing a fine violet blue

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* His Excellency General Count Guilleminot, the French Ambassador here, has seen me set fire to and consume a cypress tree with one of my compound naval rockets, at 1000 yards distance, horizontal range.

color, which by free chlorine is converted into orange. They impart to the colorless solution of the white pith of the elder and pine wood, an intense yellow color, which is not destroyed by chlorine, at least under the circumstances in which other organic colors disappear. Thus, a piece of Turkey red cotton speedily loses its color, when after being moistened with oxalic or tartaric acid, it is immersed in a solution of muriate of lime. Paper, cotton, linen, wool, and silk are not colored yellow. The effect of the salts of cyanol in coloring pine wood is so strong, that a drop containing only one five hundred thousandth part of cyanol, produces a distinct yellow color in the wood. The yellow coloring is not imparted to the fibrous part of the wood, but to a peculiar matter in the wood which also exists in other species of trees. The resin has no connexion with this coloring power.

The oil of pit coal contains a great quantity of cyanol, whose presence is easily detected by mixing 1 part of oil with a solution of 20 water and 1 part muriate of lime. The oil becomes dark red and the solution assumes a blue color, similar in intensity and appearance to the moist ammonia sulphate of copper. It is changed by the muriate of lime into an acid which forms compounds possessing a blue color.

Cyanol is very readily detected by muriatic acid, when coal oil is mixed with the latter in the proportion of 3 volumes to 1. The acid becomes brown; and a splinter of fir wood introduced into the solution, has the yellow color already described communicated to it, thereby indicating the presence of cyanol.

2. *Pyrrol.* Pyrrol (red oil) in a pure state is a gaseous body possessing the odour of turnips, (*markochen ruben*) and may be detected by dipping a stick of fir moistened with muriatic acid in a vessel containing pyrrol, when it is tinged purple red, and which like the effect of cyanol is not removed by chlorine. Paper, &c., treated in the same manner remains colorless. The coloring power of the compounds of pyrrol is not less strong than that of cyanol. Nitric acid produces in the aqueous solution of pyrrol a red color.

It is difficult to detect pyrrol in coal oil, as the cyanol and carbolic acid render its re-action indistinct, but it may easily be discovered in water which has been employed to wash common street gas, by saturating it with muriatic acid, and dipping into it a stick of fir. A purple red color is occasioned.

Pyrrol forms the principal constituent of empyreumatic ammonia, and when its peculiar smell is known, it may be distinguished among the odours which are disengaged by the distillation of bones and horns. Pyrrol is also contained in tobacco oil.

3. *Leucol.* Leucol (white oil) has been so termed because its re-action is colorless. It does not produce a blue color in muriate of lime, nor does it communicate to fir any tinge. Leucol is an oily substance, and is well characterized by the salts which it forms with acids, it loses its smell by its combination with acids and forms with oxalic acid crystallized salt.

When brought in contract with the moist skin, acetate of Leucol emits a smell like phosphorus.

ACIDS.

1. *Carbolic Acid.* This acid is a colorless oily substance, sinking in water. Its smell is extremely empyreumatic; it is caustic and burning, and has a strong action on the skin. When the skin is rubbed with it, a feeling of burning is felt, and a white spot is produced, which on being touched with water becomes red, and in some days desquamates. In this respect it corresponds with creosote, but differs in being acid; in being precipitated by acetate of lead, and in not being altered by ammonia or the atmosphere, and in being converted by nitric acid, even diluted, into a reddish brown matter.

Carbolic acid dissolves in water. The solution is colorless and the acid is easily rendered conspicuous with nitric acid. The water is at first yellow or orange, and afterwards reddish brown; a stick of fir plunged in dilute carbolic acid takes, after being moistened with muriatic acid, in half an hour a blue color. The vapour of muriatic acid also tinges shavings moistened with carbolic acid of a blue color. This tinge withstands the action of chlorine in a high degree.

The salts of carbolic acid are colorless and many of them can be crystalized: their aqueous solutions present the same appearances with fir as the solution of cabolic acid. Carbolic acid precipitates albumen, prevents organic substances from putrifying, and removes the putrid smell of meat, when digested with an aqueous solution, much better than chlorine. The presence of carbolic acid may be detected in coal oil by mixing it with lime water, filtering and evaporating to the consistence of a syrup. Muriatic acid separates impure carbolic acid from this mass, which is impure carbolate of lime.

2. *Rosolic Acid.* This acid (rose oil) is a product of the chemical decomposition of coal oil, and contains what is remarkable,

a true pigment. It produces red and lake colours which are equal in beauty to saffron, cochineal and madder.

Rosolic acid is a resinous mass which may be reduced to powder, and assumes an orange yellow color.

The principal from which rosalic acid is formed has not yet been detected; but its presence may be easily demonstrated by mixing lime water with coal oil, filtering the watery solution, and allowing it to stand for some hours. The colorless or yellow solution now becomes red: which is occasioned by the precipitation of the rosolate of lime.

3. *Brunolic Acid.* Brunolic acid is formed in the same way as the rosolic. It is vitreous, shining, easily pulverized, and resembles asphaltum. Most of the compounds of brunolic acid are brown and insoluble, whilst those of rosolic acid are red and soluble.

Besides these six substances, there is still another which has not been obtained in a separate state.

Separatson of Cyanol and Leucol.—Mix together and agitate 12 parts of coal oil, 2 of lime and 50 of water. After 6 or 8 hours pass the liquid through a filter. It is of a brownish yellow color and should be distilled one half. The liquid which comes over consists of a thick oil, and a solution of it in water contains carbolic acid in combination with ammonia, leucol, pyrrol, and cyanol. Five distillations are required to separate the cyanol and leucol from this mixture. The first distillation is conducted with an excess of muriatic acid, by which means the pyrrol and carbolic acid pass over into the receiver, and the process is continued till the liquid passing over is no longer red, brown, or yellow, when it is to be mixed with nitric acid. The retort now contains a mixture of ammonia, leucol, and cyanol in union with nitric acid. This mixture possesses a bright yellow color, and should now be distilled with an excess of caustic soda. The three bases pass over into the receiver with the water, and in the retort remains the yellow ley with nitric acid. The matter is to be re-distilled with an excess of acetic acid, and the process is to be continued till the liquid passing over tinges fir wood. Acetate of cyanol and leucol collect in the form of a colorless solution in the receiver, while a great portion of the ammonia remains in combination with acetic acid forming a residum. The acetic acid salts are now to be converted into oxalates by distillation with oxalic acid. When the liquid which passes over tinges wood yellow, it is a proof that the bases are saturated. The liquid in the receiver is now to be gently evaporated by dryness. The mass consisting of oxalates of cyanol and leucol mixed with a little coloring matter and ammonia, should be reduced to powder digested with spirits, and thrown on a filter, the spirits and coloring matter pass through the filter and leave the salts. This digestion and filtration should be repeated till the liquid passing through is colorless. The funnel should then be transferred to another vessel, and spirits digested on the salts as long as any are dissolved. Oxalate of ammonia now remains upon the filter, and the spirits contain in solution exalates of cyanol and leucol, which by the evaporation of the spirits are obtained in crystals. These are to be dissolved in water and laid aside to crystalize. Fine needle crystals of oxalate of leucol first appear, and after some time crystals also of oxalate of cyanol make their appearance. The latter are in broad plates of a brownish color, and change with muriate of lime to a violet blue, and turn wood to a yellow color. Should the two salts after separation not be quite pure, they should be repeatedly dissolved in alcohol and crystallized. To separate the two bases from the salts, it is only necessary to distil them with soda ley, when they pass over into the receiver with the vapour of the water.

Separation of Pyrrol.—It is extremely difficult to obtain pyrrol in a separate state, in consequence of its affinity for carbolic acid. To obviate the effects of the acid, it is best to saturate the empyreumatic ammonia which passes over from the distilled bones with an acid. The matter which passes into the receiver should be mixed in the first Woulf's bottle, after being filtered, and the discharged gases absorbed by caustic potash, or lime water. By distillation, the pyrrol is carried into the receiver, forming a colorless solution, which produces a purple red in wood. To purify the pyrrol, it should be distilled with muriatic acid, when muriate of pyrrol passes over. When distilled with caustic ley the pyrrol comes over pure.

Separation of Carbolic Acid.—Agitate together 12 parts of coal oil, 2 of lime, and 5 of water, at intervals, for six or eight hours. The filtered liquid should be boiled down to a fourth part, filtered after cooling, and mixed with an excess of muriatic acid. Impure carbolic acid collects at the bottom of the vessel, in the form of a brownish oil. The supernatent liquid should be removed, the brown oil washed with water, and subjected to distillation. A milky liquid passes over, from which some color-

less oily drops separate, which are pure carbolic acid. As much water is now to be added to the receiver as will dissolve the oil, and then the liquid precipitated with acetate of lead. Carbonate of lead is formed, which, after being well washed, is subjected to dry distillation. The carbolic acid collects in the receiver in the form of a yellow oil, which after rectification, appears as a thick liquid, consisting of pure anhydrous carbolic acid. When the lead salt is not properly dried, water passes over with the acid.

This process is necessary to free it from the heterogenous compounds in the coal-tar, which are ammonia, cyanol, pyrrol, and leucol. These are removed by the boiling. Creosote and sulphur are partly precipitated by the lead, and the rosolic and brunolic acids remain in the retort, while the water is separated by rectification.

Separation of Rosolic and Brunolic Acid.—The residue in the retort, after the last process, is to be boiled with water, dissolved in spirits, and mixed with lime water. A rose colored solution of rosolate of lime is formed, and brunolate of lime remains at the bottom, as a brown precipitate. From the rosolate of lime the rosolic acid is separated by acetic acid, and again combined with lime, whereby brunolic acid separates. The decomposition, by means of acid and repeated solution, should be continued as long as brunolic acid is observed. The rosolic acid is then collected on a filter, and dissolved after edulcoration and drying in alcohol. There remains on evaporation, a vitreous, hard, orange colored mass. The rosolic acid may also be separated by evaporating the solution of rosolate of lime to the thickness of syrup, and mixing it with one third spirits. In the course of a day red crystals of the salt appear on the sides of the glass, which are to be removed, well washed, dissolved in water, evaporated, and treated with acetic acid and lime water. The brunolic acid is separated from the brunolate of lime by digestion with an excess of muriatic acid. The brunolic acid separates in brown flakes, which for complete separation from the rosolic acid, must be repeatedly treated with lime and acid. The acids separated from the lime by muriatic acid, are dissolved in soda ley, and the solution is mixed again with muriatic acid, when a pure precipitate of brunolic acid falls, which may be completely purified by solution in alcohol.

Apprentices—The Mechanic Arts.—If we should desire to counteract the pernicious influence of Trades Unions and radicals from abroad, we must teach our sons the Mechanic Arts and bind more of them as apprentices to substantial and profitable employments than we are now in the habit of doing. We are all wrong in underrating the value of mechanical occupations—we are all wrong in making all our sons Doctors Lawyers, Divines and Merchants. Some branches of the family should be mechanics, and if when they are out of their time, we can give them some money to commence business, with we at once set them on the road to independence—to solid independence, weight and influence. Employment, labor, healthy, refreshing, constant labor, is the grand secret to keep boys correct and moral, to keep them out of vice in every shape, to make good sons and good citizens of them. There are many poor widows with boys from ten to thirteen years of age, who are not probably aware that if they are good and industrious can earn from one hundred to one hundred and fifty dollars per annum, and have steady employment. This is much more profitable in every respect, than running about the streets after soldiers or fire engines.

We have often wondered that so few sons of gentlemen of fortune, offer as apprentices to some mechanical pursuit to the Printing business—a business which is light and agreeable, and combines so many advantages. It may be asked what are the benefits of this branch of the Mechanical Arts. The sons of persons in easy circumstances who can board and lodge them without cost until they are out of their times—who will superintend their comforts and morals; and feel, as they ought to feel, an interest in their advancement may realize the following advantages.

1st. They learn a business which ranks high in the cultivation of the human mind; a business by which they at once become familiar with the moral and political condition of the country—the advancement of the mechanic arts—the progress of internal improvements—a business which made Dr. Franklin the great man he is, by the whole world allowed to have been.

2d. The Printing business includes a knowledge of proof reading, some acquaintance with the art of paper making—and in newspaper office where a boy is intelligent, quick, ambitious to excell, he becomes familiar with editorial pursuits—and when out of his time, becomes proprietor, or part proprietor of a city or country paper, and if prudent, temperate and industrious, may become a conspicuous politician, and fill any of the high offices of the country, as we see at present in beholding Printers, Senators in Congress and members of the House of

Representatives. So much for our profession, but there are many noble mechanical pursuits which should be cultivated by young men of good family and education.

The Builder, which includes the beautiful science of architecture, the ship builder; a first rate and respectable calling. Workers in gold, silver, copper and other metals. Cabinet Making. In short, we could name fifty occupations—more valuable—more enduring—more healthy; more positively independent, than the range of professional callings, and the sickly, poverty stricken labor of the midnight lamp.

By this course we shall bring into the line of mechanics an intelligent, well educated, highly respectable class of American citizens, free ftom radicalism, combinations, unjust extortions or disreputable associations.—[New-York Evening Star.]

Extinguishment of Fires at St. Petersburgh.—The following article, in relation to the extinguishment of fires, is from a new publication, by M. Von Tietz, Prussian Counsellor of Legation, to St. Petersburg Constantinople and Napoli di Romania :—"In every district in the city (St. Petersburgh,) there are several police stations, wherein fire engines are placed, with high towers, upon the galleries of which there are two watchmen. So soon as these observe a fire break out, by ringing a bell, they apprise the firemen beneath, who immediately hasten to the spot. In whatsoever portion of the city the fire happens to be, it is indicated upon the towers alluded to. For every district a peculiar set of figures is exhibited as a kind of telegraph; at night this is done by lanterns. Every body of firemen has its distinct time appointed, even to a minute, by which to reach the place of fire. The whole are organized and equipped like a regiment; and have no other occupation besides this. They are exercised every week, sometimes a wooden building of light construction, at some distance from the city, is set on fire, in order to instruct the men in the practical service. The mounting of the machines is excellent, and the entire arrangements for extinguishing fire appropriate, and indeed elegant. Of these, the most useful are the fire ladders, which can be drawn up with great ease, to the highest story of a house. Equally servicable are the large nets, held extended to receive those persons who can only be saved by springing down into them: this manœuvre is constantly practised by the firemen in order to gain dexterity; and hitherto, on adopting it, they have always been fortunate enough to save the individuals without incurring any accident. In the severe frost of winter, in order to prevent the water from freezing, certain preparations are made under the navigable reservoir, for receiving but hot coals. It is interesting to observe at fires the strict regularity with which the subordinates obey the orders of their officers, and the death-defying intrepidity wherewith these grave, powerfully formed men dash into the devouring element, fearlessly scrambling along the narrow paths on the tops of the flaming houses. The Emperor always remembers, after each event of this kind, to reward them by some liberal donation."

Telegraph.—A new telegraphic system, spplicable to nautical purposes, invented by M. Claude Sala, has just been presented at as laying claim to the Monthyon prize. It is described as remarkable for its simplicity; for, by the aid of eight signs, it produces, without difficulty, all the words of the vocabulary, and, by means of two lanterns, it can carry on a nightly correspondence.—[Athenæum.]

Dr. Arnott's New Stoves.—At a meeting of the Philosophical Society of Edinburgh, which took place lately, one of Dr. Arnott's new stoves was exhibited. It is an oblong box, about three feet long, two broad, and two deep, carefully made air tight on every side. A partition within divides it into two parts, apertures above and below enabling them to communicate with each other. An apperture is arranged for the free admission of air, and another for carrying off the smoke; an air-tight door admits fuel. A stove made of earthenware, and placed on one side of the partition, contains all the fuel required, and the hot air circulates round and round the partition before it is eventually carried off by the small tubular chimney. An extensive surface of 32 square feet is thus presented to the air at a moderate elevation of temperature, about 212; and accordingly, scarcely any thing passes up the chimney which has not been almost entirely exhausted of its heat. This stove saves equally time, trouble and fuel, and is quite free from the dust of a common fire.

Fair of American Institute.

The exhibitions of the American Institute furnish a yearly test of the advance of American industry, as pleasing to the visitor as to the contributor.

During the past exhibition, we spent much time in examining the various articles, and in conversation with many of the exhibitors, among whom we found some of the most ingenious and celebrated mechanics of this or of any country, some of them having procured in Europe a reputation as distinguished as that earned in their native land.

Indeed, we never can witness a display of this kind, without feeling our natural pride strongly excited—we find the national products of our favored country inferior to none, our mineral riches greater, our agricultural results at least equal to those of the old world.

But when we regard the *mind* employed, the ingenuity displayed, particularly in the construction of the more intricate branches of manufactory machinery, we then indeed feel that we are a favored people.

The last, being the Ninth Annual Fair of the American Institute, has exceeded in variety every other exhibition of this Society.

The Fair continued open for nine days, during the whole of which, the spacious grounds of Niblo's Garden were crowded by thousands of visitors, who expressed unanimously their satisfaction.

The display of machinery was most extensive, and arrangements being made by means of a suitable steam engine, the whole apparatus was set in motion. A walk between and around these automatic wonders, gave us constant occupation in preserving our integrity, a step to one side and we should have been transformed into a shoe last by Mr. Blanchard, a turn the other way, and Mr. Cornell would have converted us into staves, without benefit of clergy.

The address delivered before the members and others, by the Hon. Caleb Cushing, was a production of singular merit, the audience one of the largest ever assembled on a similar occasion.

We are indebted to the Journal of the American Institute for the list of Premiums awarded by the Managers of the Fair. We shall insert our own remarks, and afterwards give a description, with cuts, of several of the most important machines.

WOOLLEN GOODS.

The exhibition in this line was highly gratifying. We cannot conceive why prejudices against American broad cloths should exist in the minds of any who have seen these specimens. For our own part, we should feel proud to wear such in preference to any other—indeed it is more than suspected that our fashionables often purchase splendid English cloths *made in this country*, for high prices.

The flannels, both plain and colored, were much admired, and by the ladies and other good judges, pronounced to be of superior quality.

The blankets, absolutely brought on a drowsy fit, so comfortable, so luxurious did they seem.

Northampton Manufacturing Company, Northampton, Mass., for the best specimen of broadcloths, manufactured from American wool, Bond, Whitwell & Co., agents, 64 Pine-street. *Gold Medal.*

Beecher Manufacturing Company, Waterbury, Conn., for the second best specimen of broadcloths, Steele, Wolcott & Co., agents, 62 Pine-street. *Silver Medal.*

Dudley Woollen Manufacturing Company, Dudley, Mass., for extensive specimens and variety of colored cloths and cassimeres, of daily manufacture, Wales & Plimpton, agents, 40 Pine-street. *Silver Medal.*

Middlesex Manufacturing Company, Lowell, Mass., for a fine specimen of colored broadcloths, and plain and fancy cassimeres, Steele, Wolcott & Co., agents, 62 Pine-street. *Silver Medal.*

Middlesex Manufacturing Company, Lowell, Mass., for a fine specimen of goats' hair cloth, sample of 500 pieces, Steele, Wolcott & Co., agents, 62 Pine-street. *Silver Medal.*

Ballard Vale Company, (John Marland, agent,) for the best specimen of white flan-

nels, Tucker, Dorr & Co., agents, 33 Pine-street. *Silver Medal.*

Buffalo Woollen Manufacturing Company, Buffalo, N. Y., for a superior specimen of blankets, S. Grosvenor & Co., agents, corner of William and Pine streets. *Silver Medal.*

Salisbury Manufacturing Company, for very fine specimens of various colors plain and printed flannels, Burns, Hilliburton & Co., agents, 24 Broad-street. *Silver Medal.*

Wm. De Forest & Co., Naugatuc, Conn., for the best specimen of sattinets, Goodwin, Fisher & Spencer, agents, 46 Exchange Place. *Gold Medal.*

Wolcottville Manufacturing Company, Conn., for an excellent specimen of buck-skin and other sattinets, made of Mogadore wool, Wolcott & Goodwin, agents, 29 Pine-street. *Gold Medal.*

WOOL.

The samples of wool were of fine quality, to both of them Medals were awarded.

Charles B. Smith, Torringford, Conn., for the best specimen of wool, sample of 1200 fleeces, Wolcott & Goodwin, agents, 29 Pine-street. *Gold Medal.*

Samuel Lawrence, Boston, Mass., for the second best specimens of wool, sample of a flock, Steele, Wolcott & Co., agents, 62 Pine-street. *Silver Medal.*

SILK AND COTTON GOODS, &C.

How carefully this infant branch of domestic industry has been reared, the articles exhibited during this Fair can testify. No more pleasing sight has been presented to us for a long while. The specimens of Messrs. Du Bouchett & Durant were of great beauty.—The article of *silk worm gut* prepared by the latter, though known to the disciples of Old Isaac Walton, is a new manufacture in this country.

Mr. Durant exhibited his divers articles neatly disposed, and presenting the various stages of the insect from the egg to the perfect moth, the cases also contained specimens of the gut, of raw and sewing silk of different degrees of fineness. It would be unfair to particularize, as all the articles in this department were deserving of commendation, both in the raw material and the various fabrics.

Charles Du Bouchett, New-Haven, Conn., for the best specimen of sewing silk. *Gold Medal.*

Charles F. Durant, Jersey City, N. Jersey, for the first silk worm gut known to the Institute as having been manufactured in the United States. *Gold Medal.*

Charles F. Durant, Jersey City, N. Jersey, for the best specimen of cocoons, and a fine specimen of sewing and raw silk. *Silver Medal.*

Peninah Mabbett, Saratoga County, N. Y., for the second best specimen of cocoons. *Diploma.*

Livingston, Livingston, N. Y., for a fine specimen of reeled silk (second crop). *Diploma.*

Valentine Silk Company, Providence, R. Island, for a fine specimen of silk and cotton goods, silk handkerchiefs, &c., Charles Dyer, agent. *Silver Medal.*

Northampton Silk Company, Northampton, Mass., for a superior specimen of reeled and raw silk, Charles St. John, agent, 118 Broadway. *Silver Medal.*

Mrs. Samuel Church, Bethlehem, Conn., for a fine specimen of reeled silk, S. P. Church, agent, 129 Water-street. *Silver Medal.*

Nantucket Silk Company, for fine specimens of silk and cotton cloth. *Diploma.*

Poughkeepsie Silk Manufacturing Company, B. Arnold, agent, for a beautiful specimen of silk vesting, silk for printing, and silk stock frames. *Silver Medal.*

Brown, Brothers & Co., agents, 63 Pine-street, for the second best specimen of silk and cotton goods. *Diploma.*

Doctor James Manerry, North Carolina, for a fine specimen of raw silk, Brown, Brothers & Co., agents, 63 Pine-street. *Diploma.*

Eliza Evans, Waterford, N. Y., for fine specimens of sewing twist, reeled and raw silk, and cocoons. *Diploma.*

Mrs. Seth Wakeman, Salisbury, Conn., for a fine specimen of cocoons. *Diploma.*

John W. Chambers, N. Y., for fine specimens of cocoons, raised at the Repository of the American Institute. *Diploma.*

John A. May, 554 Broadway, for the best specimen of silk umbrellas. *Silver Medal.*

American Print Works, Fall River, Mass., for the best specimen of chintz prints, Goodwin, Fisher & Spencer, agents, 46 Exchange Place. *Diploma.*

Rahway Print Works, Rahway, N. Jersey, for the second best specimen of chintz

prints, B. F. Lee & Co., agents, 54 William-street. *Diploma.*

Benjamin Marshall, New-York Mills, Oneida county, for the best specimen of ginghams and satin jeans, Marshall, Carvill & Taylor, agents, 26 Pine-street. *Silver Medal.*

Louisdale Manufacturing Company, R. Island, for a fine specimen of American nankeen, N. Lord & Co., agents, 39 Broad-street. *Silver Medal.*

A specimen of American or Forsyth Nankeen, formed from the nankeen colored variety of cotton, no dye being used, and the color being original in the article, washing can have no effect. This is a comparatively new article of domestic produce.

Silas Shepard & Son, Taunton, Mass., for a superior specimen of Canton flannel, Holbrook, Nelson & Co., agents, 53 Pine-street. *Silver Medal.*

A fine sample of a popular and useful fabric.

HARDWARE AND CUTLERY.

The appearance of the hardware was fine, in the opinion of the judges, the good qualities were more than skin deep. The first five articles on the list obtained Silver Medals, each excelling in its kind. The articles presented by R. Hoe & Co., presented the greatest variety, the reputation of the firm has been established for a long time.

D. Simmons, Cohoes, N. York, for the best specimen of axes, hammers, and hatchets, Pierson & Co., agents, corner of Front and Broad streets. *Silver Medal.*

Pierce & Wood, Middleborough, Mass., for the best specimen of shovels, Gay & Galloway, agents, corner of Old Slip and Water-streets. *Silver Medal.*

R. Hoe & Co., 29 and 31 Gold-street, for the greatest variety of fine specimens of saws, trowels, cutting knives, cotton gin, and veneering saws. *Silver Medal.*

Thomas W. J. Groves, Southington, Conn., for a fine specimen of hand and back saws. *Silver Medal.*

Blake Brothers, New-Haven, Conn., for a superior mortice lock and latches, Parker, Wilson & Co., agents, 8 Platt-street. *Silver Medal.*

Poughkeepsie Screw Company, Poughkeepsie, N. Y., for the best specimen of wood screws, made by improved machinery, Witherell, Ames & Co., agents, 2 Liberty-street. *Gold Medal.*

The best of all the improved screws of improved times. We have in our possession specimens of the article in every stage, and have compared them with others. They are far superior in strength and neatness of finish—qualities that are wanting in screws prepared by other modes.

The machine is the invention of one of our best mechanics, and does credit to him.

Solomon Andrews, M. D., Perth Amboy, New-Jersey, and 175 Broadway, for a superior combination bank lock. A Silver Medal having been awarded at two former Fairs. *Diploma.*

Holmes & Co., Utica, N. Y., for a superior bank lock. *Diploma.*

Thomas R. Hicks, Wallingford, Conn., for a bell hanger and cutting plyers. *Diploma.*

Harvey & Knight, Poughkeepsie, N. Y., for a fine specimen of flange railroad spikes, Boorman & Johnson, agents, 119 Greenwich-street. *Silver Medal.*

In the mass of articles, some of smaller size were overlooked by us, and this was among the number. We should have taken great pleasure in examining a specimen found worthy of the silver medal.

Israel Coe, Wolcottville, Conn., for a fine specimen of rolled copper and brass, and brass battery kettles. *Gold Medal.*

The specimens of rolled brass and copper were beautiful, while the texture of the article appeared to be of great uniformity; the judges, it appears, were as well pleased; they gave them the gold medal.

Rochus Heinisch, Newark, New-Jersey, for the greatest variety of superior cutlery, John Andrews, agent, 147 Fulton-street. *Gold Medal.*

The samples of American cutlery were beautifully finished; they are said also, to be as useful articles as most that we procure from abroad. To the Bowie knives the term *useful* should not be employed, unless bears and other such *varmint* are to be their

victims. They certainly make a handsome article.

W. Wild, 162 Division street, for a superior specimen of penknives. *Silver Medal.*

The specimen of penknives by Mr. Wild, are entirely of his own manufacture, from the handle to the blade, and from close inspection we can answer for the superiority of both.

Eagle Factory, 87 Attorney-street, for a fine specimen of anvils, a superior article. *Silver Medal.*

John Smith, 217 Water-street, for an elegant specimen of jappanning. *Diploma.*

Pettibone & Long, 4 Liberty-street, for a fine specimen of scythes, (Harris, manufacturer.) *Diploma.*

Pettibone & Long, 4 Liberty-street, for a handsome specimen of hoes. *Diploma.*

James Bogert, 472 Pearl-street, for a mill saw sett. *Diploma.*

M. Merriman, Jr., New-Haven, Conn., for a window spring and sash fastener, Atwater & Pomeroy, agents, 115 Maiden-Lane.

Andrew Drysdale, Jr., corner of Liberty and Washington-streets, for a superior specimen of horse shoes on hoofs. *Silver Medal.*

There was a neatness in the arrangement of these articles that gave satisfaction, independent of that derived from the superior utility of the shoe itself. Neatly placed upon prepared hoofs they gave a clear insight into their modus operandi.

James Drysdale, 8 Fifth-street, for a good specimen of horse shoes. *Diploma.*

Julius Davis, 92 Chatham-street, for joiners' plains of superior workmanship. *Diploma.*

T. I. Newland, Utica, N. Y., for one brass teakettle. *Diploma.*

New-England Glass Company, Peter Morton, agent, for a superior specimen of glass knobs. *Silver Medal.*

We were struck by the variety of ingenious patterns displayed in this article. The Medallion Knob is to us a new article, and in its different forms, cannot fail to become popular, or what is still better, fashionable.

BUGGY RAILINGS, COACH SPRINGS, &C.

In these articles we are again reminded of the perfection of modern mechanics. Strength and symetry of form are combined, and we now can have a carriage of proper strength, without the former awkwardness of size and weight.

Joseph W. Lees, Newark, New-Jersey, for the best specimen of coach springs. *Silver Medal.*

Lewis Alling, Newark, New-Jersey, for the 2d best specimen of coach springs. *Diploma.*

James N. Joraleman, Newark, New-Jersey, for the best specimen of elliptic springs, coach steps and railroad springs. *Gold Medal.*

George Dunn, Newark, N. J., for the best specimen of buggy railings, and dash frames of excellent mechanism and workmanship. *Silver Medal.* And $30 deposited with the Institute for the successful competitor.

Wm. H. Sanders, Hastings, N. Y., for a good specimen of coach axles. *Diploma.*

GRATES, KITCHEN RANGES, STOVES, &C.

Ward, Goadby & Co., 137 Grand-street, for the best specimen of German silver, reflecting grates, (Doct. William Anderson's patent.) *Silver Medal.*

A beautiful contrivance for reflecting the heat into the room, executed in a beautiful metal. This grate appears to be getting into favor, many of our new houses are being fitted up with them.

Edward Smylie, 73 Henry-street, for the 2d best specimen of grates. *Silver Medal.*

S. Pierce, for the best kitchen range, Lockwood & Andrews, manufacturers, 364 Broadway. *Gold Medal.*

"The proof of the pudding is the eating." This adage was verified by the proprietor, who kept his range in constant operation and puddings and pies, as well as more substantial fare, were turned out in great abundance.

This is certainly the best arranged cooking apparatus that we have seen; those who use it, speak well of it.

James Atwater, New-Haven, Conn., for the best specimen of stoves, Atwater and Pomeroy, agents, 115 Maiden-Lane. *Silver Medal.*

These stoves, likewise, kept in operation, were among the most beautiful in appear-

ance, and possessing several capital qualities, obtained the silver medal.

Smith & Sherman, 207 Water street, for the 2d best specimen of stoves, (Olmstead's patent.) *Silver Medal.*

We consider that Prof. Olmstead has become a public benefactor in giving to the community this form of stove. When men of science turn their attention to such matters, we may confidentially expect some happy result.

We think the principal of this stove is the best for inhabited apartments, of any that we have ever seen; we have made trial of the article ourselves and speak from experience. The perfect management of the heat is a great feature in the stove, the circulation of the warm air, is another.

This, too, is the only stove fit for sleeping apartments, if we must have fire to sleep by.

For a detailed account of the principle of operation of the stove, as well as drawings, &c. We refer to the recent No. of the Railroad Journal, containing Prof. Olmstead's article on the subject.

Jordan L. Mott, 233 Water-street, for an excellent specimen of coal cooking stoves, *Diploma.*

Wm. Morrison, 54 Bowery, for a fine specimen of coal cooking stoves. *Diploma.*

M. N. Stanley & Co., 244 Water-street, for a fine specimen of rotary coal cooking stoves. *Diploma.*

J. S. Gold, 84 Nassau-street, for a fine specimen of Franklin office stoves and union oven. *Diploma.*

George J. Lorton, 200 Canal-street, (apprentice,) for a hall stove of good workmanship. *Diploma.*

HOLLOW WARE AND CASTINGS.

Bartlett Bent, Jersey city, New-Jersey, for the best specimen of hollow ware. *Silver Medal.*

Wm. Cumberland, 421 Munroe-street, for the best specimen of enamelled hollow ware. *Diploma.*

We are not aware that the manufacture of enamelled hollow ware is carried on elsewhere in this country.

The art is a curious one known but to few—though its applications are numerous and useful.

Richards & Damorel, 143 Perry-street, for a cast iron sash and frame. *Diploma.*

SILVER PLATED WARE AND JEWELRY.

The plate and Jewelry furnished a tempting display.

The Silver ware of Messrs. Gardner & Marquand was the most brilliant collection in the room, their beautiful finish and rich desingn giving pleasure to all the ladies, the best judges of such matters.

The watch dials of Mr. Mullen were highly pleasing evidences of the perfection to which this gentleman has carried his art.

Baldwin Gardner, 39 Nassau-street, for the best specimen of silver work, a pair of superb pitchers. *Gold Medal.*

Marquand & Co., 181 Broadway, for the 2d best specimen of siver work, elegant pitchers, vase tea set, cake baskets, spoons and forks. *Silver Medal.*

G. M. Usher, 60 Reade-street, for the best specimen of jewelry. *Silver Medal.*

William J. Mullen, 175 Broadway, for the best specimen of gold and silver watch dials. *Gold Medal.*

Henry Withers, 157 Broadway, for a most beautiful specimen of gold and silver pencil cases. *Silver Medal.*

PRINTING MATERIALS, BOOKS AND STATIONERY.

Next to the pleasure of reading a well written work, is that of sliding the eye over a clean and handsome page.

In blank books the same pleasure exists in writing on the right sort of paper, nicely bound, with good pens filled with rich ink.

All these and "more too" were furnished under this head.

The specimens of wooden type were well made.

The ink we had no chance to try, but presume that as Mr. Davids obtained a silver medal, his "fluid" was not found wanting in any of the important requisites of good ink.

Now that blue ink has become fashionable every wash, dye, decoction or stain that has the proper color is used for ink, neither pen-

etrating the paper nor turning black, both of which are among the prominent properties of the real stuff. Mr. D. is, we believe, the real simon pure in this matter.

David Felt & Co., 245 Pearl-street, for the best specimen of blank books. *Silver Medal.*

Joseph Hegeman, cor. Wall and William-streets, for the 2d best specimen of blank books. *Diploma.*

Thaddeus Davids, 222 William-street, for the best specimens of sealing-wax, wafers, black and red ink, and writing fluid. *Silver Medal.*

Griffin, Willcox & Co., 114 and 116 Nassau-street, for a fine specimen of writing fluid. *Diploma.*

D. Wells & Co., 61 John-street, for fine specimens of wood type. *Silver Medal.*

Linen & Horn, 80 Vesey-street, for a superior specimen of book binding, (Sunday Morning News,) *Silver Medal.*

Samuel Jenks Smith, cor. Beckman and Nassau-streets, for well executed newspaper printing, (Sunday Morning News.) *Silver Medal.*

Conner & Cooke, cor. Ann nnd Nassau-streets, for handsome specimens of book-binding, from Turner's bindery. *Diploma.*

George Bruce & Co., 13 Chambers-street, for a book of specimens of type, ornaments, borders, &c. *Diploma.*

William Blanc, cor. Duane and Rose-streets, for fine specimens of colored and marble paper. *Diploma.*

James Maxwell, 259 Bowery, for the eagle printing press. *Diploma.*

J. Lemuel Kengslep, 212 Greenwich-street, for the Jefferson printing press.—*Diploma.*

CARPETING AND OIL CLOTHS.

Thompsonville Carpet Manufacturing Co., for the best specimen of carpeting and hearth rugs, Thompson & Co., agents, 13 Spruce-street. *Gold Medal.*

D. Powers & Co., Lansingburg, N. York, for the best specimen of floor oil cloths, Albro Hoyt & Co., agents, 105 Bowery.—*Silver Medal.*

Norwalk Patent Capet Co., Norwalk, Conn., for a fine specimen of felt carpeting, Jessup Swift & Co., agents, 66 Pine-street. *Silver Medal.*

While all the specimens of carpeting and oil cloth were of the first quality—we cannot forbear giving a more extended notice of the last and least known article *Felt Carpeting.* The stuff itself as the name implies is felt, strongly prepared.—The consequence is that no grain, or thread exists in the carpet, which is nothing but a homogenous mass of fibre twisted and wrought in every direction until its great strength and compactness is attained.

One of the greatest advantages of this carpet appears to us to exist in its power of resisting the entrance of dust and dirt—none of which can penetrate. It must also be much warmer than other carpeting, as it prevents any draught from a leaky floor passing through it.

The colors being printed upon it, can be varied at pleasure, and are as firm and lasting as the felt itself.

The pieces that we have seen have the appearance of Brussels carpet, with a very great superiority over that article—they cost about half as much.

LAMPS.

But few specimens of lamps were presented—such as were exhibited were of good quality. There is certainly no domestic comfort equal to that of a good astral lamp, and like certain other domestic blessings, when bad there is no greater curse. Mr. Wignell's lamps are as unlike bad wives as possible.

The specimen of coach lamps attracted great attention. They were finished in the most costly manner, appearing rather to belong to parlor, than stable appointments.

Samuel Wignell, 245 Grand-street, for the best specimen of astral and mantel lamps. *Silver Medal.*

J. L. Gourlay, Newark, New-Jersey, for a most beautiful specimen of coach lamps. *Silver Medal.*

Alonzo Platt, Middletown, Conn., for a union lamp. *Silver Medal.*

SADDLERY, MILITARY EQUIPMENTS AND TRUNKS.

The remark in regard to coach lamps will apply to the articles in this department.

The plated harness was really elegant, it does seem to us that no further progress can be made in this line, without putting upon horses what might better be expended upon human beings.

H. Carter, Newark, New-Jersey, for the best specimen of saddles. *Silver Medal.*

Darcy & Gray, Newark, New-Jersey, for the best specimen of harness and trunks. *Silver Medal.*

Alfred Edwards, Newark, New-Jersey, for the best specimen of forged hames, and a good specimen of saddlery plated ware. *Silver Medal.*

Jude & Ennis, Newark, New-Jersey, for the best specimen of plated saddlery ware. *Silver Medal.*

Isaac Fryer, 275 Pearl-street, for the best specimen of bridle bitts, stirrups, &c.—*Diploma.*

F. W. Widman, Philadelphia, for a most beautiful specimen of swords. *Silver Medal.*

GUNS AND PISTOLS.

Wm. J. Lane, (Tutenburg Manufacturer,) for the best specimen of double barrelled guns. *Diploma.*

John W. Cochrane, New-York, for a specimen of many chambered and non recoiling Rifles. *Gold Medal.*

There could have been but little discussion among the judges as to the award of the Gold Medal to Mr. Cochrane.

The history and details of Mr. C.'s invention have been generally published throughout the Union.

His flattering reception by the different European powers is well known, but no idea of the greatness of his invention can be formed, equal to that derived from his own explanations of his own piece, concluded by a trial with his own hands. Gentlemen of great experience in such matters have assured us that Mr. Cochrane's marksmanship is unequalled—of that we were most firmly convinced, when we saw him drive 9 bullets into the same aperture, in rather less than a minute.

By means of a revolving series of Chambers, with a separate touch hole to each, 9 or 11, or any number of charges that can be placed in the revolving chambers, can be fired in immediate succession.

The impossibility of fire communicating to the other charges was proved by Mr. C., who placed a quantity of loose powder about one percussion cap while he fired off the next. The powder remained unburnt.—The circumstance of the absence of recoil, was satisfactorily accounted for by Mr. Cochrane—indeed his notions on this subject are peculiar, and we shall take a more fitting opportunity to detail them, especially in regard to the economy of powder in his gun.

Gibbs, Tiffany & Co., Southbridge, Mass., for a fine specimen of pistols. *Diploma.*

Col. North, Middletown, Conn., for carabine. *Diploma.*

ENGRAVING AND DYE SINKING.

John Allinson, 20 Mercer-street, for the best specimen of wood engraving. *Diploma.*

W. W. Hooper, 114 Nassau-street, for the 2d best specimen of wood engraving.—*Diploma.*

J. P. Henrich, 5 Tryon Row, for a specimen of bookbinders' stamps. *Diploma.*

S. Stiles & Co., 4 Spruce-street, for a beautiful map of the city of New-York.—*Gold Medal.*

Stephen H. Gimber, 46 Hudson-street, for the best specimen of mezzotinto engraving, *Diploma.*

Frederick Woodcock, Brooklyn, for an excellent specimen of engraving, (blocks for calico prints.) *Diploma.*

George Endicott, 359 Broadway, for the best specimen of lithographic engraving.—*Diploma.*

A. Hanford, 6 Little Green-street, for a specimen of xylographic engraving. *Diploma.*

W. D. Redfield, 128 Mott-street, for a fine specimen of engraving. *Diploma.*

PIANO FORTES AND MUSICAL INSTRUMENTS.

There is no branch of the fine arts more worthy of cultivation with us, than music.—It will soften our asperities of character, and render us more and more attached to social intercourse and enjoyment. In our opinion, this among all classes, is the strongest temperance measure that can be "got up."

Now good music can only be cultivated

where good instruments can be procured at moderate prices.

In this view of the case, Messrs. Torp & Love doubly deserved their Gold Medal.—The tone of the various pianos was pleasing. While on this subject we have a suggestion to make to all of our manufacturers of musical instruments. Let them expend in addition one half as much on the interior—upon that part which gives the character as an instrument—as they *throw away* upon unnecessary ornament on the exterior—ornament causing positive injury to tone and durability.

The best pianos that we have ever seen, though made of the finest wood, finished in the most beautiful manner, were rigidly plain in every other respect.

A much better piano could be made for $250 than many that sell for $500, as handsome pieces of furniture.

This is a matter to be looked to by all purchasers, and we advise those who desire to patronize American industry in this branch of manufacture, to procure such instruments only as are specimens of excellence in the musical department, leaving rich and highly ornamented cabinet ware, if they must have it, to shine out in some other and more suitable shape.

The Flute seemed the admiration of all lovers of this popular instrument, the tone for excelling ordinary instruments—it very deservedly obtained the Gold Medal.

Torp & Love, 465 Broadway, for the best specimen of horizontal grand action piano fortes. *Gold Medal.*

John Abbott & Co., Bowery, for the 2d best specimen of horizontal grand action piano fortes. *Silver Medal.*

T. Kearsing & Son, 259 Broadway, for the 3d best specimen of horizontal piano fortes. *Diploma.*

Stodart, Davies & Brothers, Broadway, for a piano forte of fine tone and good action. *Diploma.*

G. & H. Barmore, 120 Barrow-street, for a piano forte of a very fine touch. *Diploma.*

C. H. Eisenbrant, Baltimore, Maryland, for an elegant specimen of clarionets, and a superb brilliant toned flute. *Gold Medal.*

William Mitchell, (apprentice,) 72 Eldridge-street, for a neatly constructed octave flute. *Silver Medal.*

John Rosenbeck, Utica, New-York, for a trombone. *Diploma.*

Barnard & Prior, Sauquoit, New-York, for one harmonist. *Diploma.*

INDIA RUBBER GOODS.

Eagle India Rubber Company, Boston, for the best specimen of india rubber drillings and aprons. *Silver Medal.*

Roxbury India Rubber Company, for an India Rubber camblet cloak, and 2d best specimens of drillings. *Silver Medal.*

New-York India Rubber Company, for the best specimen of India Rubber shoes, and 2d best aprons. J. L. Warner, agent, 41 John-street. *Silver Medal.*

Charles Goodyear, New-York, for a fine specimen of India Rubber cloth, not liable to decomposition from exposure to the sun, also maps. *Silver Medal.*

India Rubber has been applied to so many articles of domestic economy, that it is difficult to keep pace with the inventions or rather patents relative to this substance.

The preparation of Mr. Goodyear is novel, and founded upon principles totally different from those practised upon, in other applications of gum elastic.

It resists many of the agents, having an injurious effect upon crude caoutchouc.—Maps and various specimens of printing and engraving upon this substance were exhibited, giving promise of great durability.

From this article and others exhibited at the Fair, we are confident, that articles of dress can be made, combining the many advantages without any of the disagreeable effects of India Rubber. Its great lightness, will soon cause it to find a place in the wardrobe of our fashionables, who would as soon perish as wear any thing looking like comfortable clothing.

S. C. Smith, 66 Chatham-street, for a fine specimen of India Rubber bootees. *Diploma.*

H. Percivell & Co., Belleville, N. Jersey, for a fine specimen of India Rubber balls and rings. *Diploma.*

GENTLEMEN'S BOOTS AND SHOES.

The articles in the Boot and Shoe line were extremely well made, but we must confess, that from them we obtained a very different notion of the shape, structure, and use of the human understanding, than we did from the study of anatomy. This, however, is the fault of the wearer, not of the maker, who has done every thing in his power, to render this modern instrument of torture, tolerable.

Lorin Brooks, 24 John-street, for the best specimen of cork sole boots, and single sole boots. *Silver Medal.*

Uriah Ryder, 5 Beekman-street, for the best specimen of pumps, and 2d best specimens of single sole and cork sole boots.—*Silver Medal.*

Wilson & Oviatt, Utica, Oneida county, for the best specimen of boot trees and lasts. *Diploma.*

P. G. Nagle, Newark, New-Jersey, for a fine specimen of water-proof boot legs. *Diploma.*

Edward Townley, 148 Canal-street, for a fine specimen of boots and shoes. *Diploma.*

LADIES' BOOTS AND SHOES.

Benjamin Shaw, 71 Canal-street, for the best specimen of ladies' boots. *Silver Medal.*

Wm. J. Watson, 67 Fulton-street, Brooklyn, for the 2d best specimen of ladies' boots. *Diploma.*

Wm. J. Watson, 67 Fulton-street, Brooklyn, for the best specimen of ladies' satin slippers. *Silver Medal.*

Benjamin Shaw, 71 Canal-street, for the 2d best specimen of ladies' satin slippers, and children's shoes. *Diploma.*

MANUFACMURED FURS.

The specimens of skins and caps were very creditable, combining the comfortable with the elegant.

Shepherd Brown, 421 Grand-street, for the best specimen of otter skins, and superior finished hair seal skins and caps. *Silver Medal.*

F. K. Boughton, 168 Water-street, for the best specimen of otter caps. *Silver Medal.*

F. K. Boughton, 168 Water-street, for the 2d best specimen of otter skins. *Diploma.*

Charles C. Plaisted, Brooklyn, N. York, for a fine specimen of otter caps. *Diploma.*

BEAVER AND SATIN HATS.

We plead ignorance in regard to satins, satin beavers, chip, straw, &c. Those who understand them, admired the display.

Isaac M. Henderson, 251 Division-street, for the best specimen of satin beaver hats. *Silver Medal.*

D. W. Clark McClosky, apprentice, 404 Broadway, for the second best specimen of satin beaver hats. *Diploma.*

Willington & Tombs, 329 Broadway, for the best specimen of ladies' and misses' satin and beaver hats. *Diploma.*

S. Tuttle, 208 Chatham-street, for the 2d best specimen of ladies' and misses' satin and beaver hats. *Diploma.*

Edward Mullen, 93 Bowery. for a fine specimen of military hats. *Diploma.*

William H. Wright, cor. West and Spring streets, for a fine specimen of satin hats.—*Diploma.*

LADIES' HATS.

Mrs. Harrison, 43½ Division-street, for the best specimen of split straw bonnets.—*Diploma.*

Mrs. Harrison, 43½ Division-street, for the 2d best specimen of Florence braid hats. *Diploma.*

George Dryden, 63 Canal-street, for the best specimen of Florence Tuscan bonnets and Dunstable hats. *Diploma.*

Mrs. M. D. Hodge, 353½ Grand-street, for a fine specimen of Florence braid hats. *Diploma.*

FINE ARTS.

Bass Otis, Philadelphia, for full length paintings of Gen. Wm. Henry Harrison, and mechanic and work shop. *Silver Medal.*

John Baker, 350 Houston-street, for a model in clay, (Death of Busnfield.) *Silver Medal.*

A very fair piece of modeling, this and other exhibitions of the same artist show a strong constructive talent, of the results of which we hope to see more.

Frederick Bashard, 219 Cherry-street, for a model of the origin of Corinthian capital. *Diploma.*

Wm. H. Miller, 16 Rivington-street, for specimens of miniature painting. *Diploma.*

Thomas Thomas, 136 Spring-street, for

a most beautiful specimen of stained glass. *Gold Medal.*

We have heard much said of the loss of the ancient art of staining glass, we do not much regret it, for the modern art is certainly its rival. The windows and other pieces exhibited were most brilliantly colored, one pane we considered a perfect gem. Nothing can be more appropriate for hall and sky lights, than such glass—the art deserves encouragement, and we have those, able to give this stimulus.

Thomas W. Hope, 6th Avenue, for a painting in oil, (a moonlight scence.) *Diploma.*

F. J. Swinton, (aged 17 years,) Quarantine, Statin Island, for a specimen of painting in water color and ink drawing. *Diploma.*

George Heisher, 33 Grand-street, (self taught) for a beautiful oil painting. *Silver Medal.*

William Warren, 35 Warren-street, (17 years of age,) for a fine specimen of miniature painting. *Silver Medal.*

J. Bennett, 205 Broadway, for a view of the city of New-York. *Diploma.*

John F. Holgate, 10 Barclay-street, for a fine specimen of pencil drawings. *Silver Medal.*

W. & J. Gibson, Bowery, for a landscape painting in oil. *Diploma.*

Richard Sealy, 3 Sheriff-street, for a fine specimen of window curtains. *Diploma.*

John Hulme, Newark, New-Jersey, for a fine specimen of painting, (an engine back.) *Diploma.*

James H. Farrand, 219 Hudson-street for a beautiful specimen of transparent window blinds. *Diploma.*

J. Johnson, 149 Spring-street, for a drawing of Hotel, St. Josephs, Florida. *Diploma.*

William Clover, 294 Broadway, for a miniature painting. *Diploma.*

Lewis P. Clover, 294 Broadway, for views of the great fire. *Diploma.*

Francis Carter, 176 Fourth-street, for a fine imitation of Chinese drawing. *Diploma.*

John Whitehead, 15 Chrystie-street, (self taught,) for one portrait. *Diploma.*

FANCY ARTICLES.

Under this head there were many articles entirely out of our sphere. The quilts certainly made a very fine show and so did the embroidery, but—perhaps it is because from sad experience, we have an unusual dread of unnecessary exercise of those delicate organs—the eyes of those performing such feats of needle work, have called largely upon our sympathies. We notice, indeed, that one was executed by a blind person, whether this misfortune was prior to, or consequent upon, the practice of the art, we are not informed. In the former case, great advantage might be obtained from employing the blind in the exercise of this *beautiful* art, instead of increasing their number by improperly exercising the vision of others.

Nothing could delight us more than a diminution in the specimens of this branch of industry, and a diversion of skill to some, less hazardous employment.

Mrs. George Roberts, Brooklyn, N. York, for a handsome quilt and aprons. *Diploma.*

Madame B. Cohn, 231 Grand-street, for the best specimen of worsted embroidery on cloth, (a piano cover.) *Silver Medal.*

Miss A. L. Cohn, 231 Grand-street, for a fine specimen of worsted work. *Diploma.*

Miss Caroline Barnes, Baltimore, Maryland, for a quilt containing 27,314 pieces. *Diploma.*

Miss R. A. Hunt, 123 Chatham-street, for a fine specimen of worsted work. *Diploma.*

Orphan Asylum, New-York, for fine specimens of needle work, ottomans and embroidery. *Diploma.*

Miss L. D. Eisenbrant, Baltimore, Maryland, for a beautiful flower basket. *Diploma.*

Mrs. G. Vultee, 114 Chatham-street, for the 2d best specimen of plain needle work, (shirts, bosoms, and collars.) *Diploma.*

Mrs. J. C. Smith, 44 Lumber-street, for beautiful imitations of flowers in wax, superior to any ever before exhibited. *Silver Medal.*

When we first saw these flowers, we supposed them to be real dahlias, so perfect was the imitation. We understand the group represented the prize flowers of the exhibition of dahlias, they certainly could not have fallen into better hands, their beau-

tiful colors and delicate shades being accurately represented.

The following article was also very prettily executed.

Miss Dunlap, 44 Lumber-street, (a pupil to Mrs. J. C. Smith,) for the 2d best specimen of wax flowers. *Diploma.*

S. Butterfield, Oneida county, New-York, for a splendid woven counterpane. *Silver Medal.*

James Graham, Oneida county, for one cotton counterpane, woven by a person 78 years of age. *Diploma.*

Miss M. Hawkes, 140 Mott-street, for an imitation rose bush. *Diploma.*

Mrs. L. Gerring, 185 Fourth-street, for specimens of iron and lamp mats. *Diploma.*

Miss Blandina Smith, (Mechanics' school,) for a beautiful worsted landscape. *Diploma.*

James Mahoney, 451 Broadway, for the 2d best specimen of shirts and bosoms. *Diploma.*

Miss Julia Jacobs, 457 Broadway, for a beautiful specimen of children's embroidered dresses. *Silver Medal.*

Miss K. Minns, New-Jersey, for a fine specimen of wax fruit. *Diploma.*

J. B. Thompson, 170 Broadway, for the best specimen of ready made linen. *Silver Medal.*

Louisa Agers, (blind) 68 Grand-street, for a curious quilted bed spread. *Diploma.*

Miss Inglis, for the best specimen of worked rugs. *Diploma*

Miss Gedney, 51 Sixth Avenue, for the 2d best specimen of ladies' embroidered dresses. *Silver Medal.*

Charles Eyre, 603 Broadway, for a specimen of leather gloves cleaned. *Diploma.*

Mrs. Petit, Scipio, Cayuga county, for a beautiful pair of knit wollen stockings.—*Diploma.*

Mrs. Bishop, 154 Cherry-street, for the best specimen of worsted work, (a basket.) *Diploma.*

Miss Thompson 14 Watts-street, for a handsome specimen of white flowers. *Diploma.*

Carl King, 265½ Broadway and 17 Division-street, for a fine specimen of millenery. *Diploma.*

Miss S. Phelps, New-York, for the best specimen of embroidery, (an infant's dress.) *Silver Medal.*

Mrs. M. E. Dyer, Providence, Rhode Island, for an elegant embroidered merino table cover. *Diploma.*

Mrs. Ross, 14 Thompson-street, for a superior specimen of bread and cakes. *Diploma.*

Mrs. Cooke, New-York, for the best specimen of silk embroidery. *Silver Medal.*

Miss Catharine Coles, (Mechanics' school) for a beautiful specimen of worsted embroidery. *Diploma.*

Mrs. Rridgeway, Brooklyn, New-York, for a handsome thread and bead bag. *Diploma.*

Mrs. Charles Dyer, jun., Providence, R. Island, for a gossimer cape, woven by the silk worm, a great curiosity presented to the American Institute.

Miss Julia Fitz, 26 Rivington-street, for beautiful worsted mat and flowers. *Diploma.*

H. Blanc, 574 Pear-street, for a fine specimen of inlaid straw work. *Diploma.*

Edward Norris, 11 Pearl-street, for a beautiful shell miniature church. *Diploma.*

Mrs. Shults, Lispenard-street, for a fine specimen of animal work. *Diploma.*

Miss M. B. Van Tuyl, New-York, for beautiful colored atlasses. *Diploma.*

Thomas J. Crowen, 567 Broadway, for one case of fancy articles. *Diploma.*

Mrs. C. Nichols, 17½ Division-street, for a beautiful specimen of millenery. *Diploma.*

Mrs. C. Nichols, 17½ Division-street, for a superior silk hat. *Diploma.*

Martha Ann Woodward, 206 Church-street, for a fine specimen of embroidery.—*Diploma.*

Mrs. Mary A. Boughton, Brooklyn, N. York, for a beautiful feather cape made from the feathers of an owl. *Diploma.*

George Peuscher, 121 Fulton-street, for a beautiful specimen of fancy boxes. *Diploma.*

READY MADE CLOTHING.

Mrs. M. Boniface, corner Broadway and Lispenard-street, for the best specimen of boy's clothing. *Diploma.*

Paul M. P. Durando, 60 Chatham-street, for the 2d best specimen of boy's clothing. *Diploma.*

Gilpin & Ferdon, 200 Chatham-street, for a fine specimen of vests. *Diploma.*

PENMANSHIP.

Charles Edwin Ely, 180 Broadway, for

the best specimen of drawn penmanship.—*Diploma.*

Stephen F. Baldwin, (aged 14 years,) 101 Sixth Avenue, for fine specimens of penmanship. *Diploma.*

James F. Crawford, 441 Bowery, for the 2d best specimen of drawn penmanship.—*Diploma.*

Wm. Jones, 79 Franklin-street, for the best specimen off-hand penmanship. *Diploma.*

John J. Hinchman, 274 Bleecker-street, (aged 15 years,) for specimens of penmanship. *Diploma.*

James W. Davis, 168½ Spring-street, for specimens of penmanship. *Diploma.*

John Cromwell, 114 Wooster-street, for specimens of penmanship. *Diploma.*

LEATHER.

H. Halsey, Windsor, Conn., for the best specimen of seal skins, Brown & Burke, agents, 7 Ferry-street. *Silver Medal.*

A well prepared article

T. & J. Greene, 3 Jacob-street, for the best specimen of morocco leather. *Diploma.*

Allen Peacock, corner Pearl & Beekman streets, for the best specimen of belt leather. *Diploma.*

TURNING.

John P. Collard, 9 Frankfort-street, for a fine specimen of fancy turning. *Diploma.*

Richard Burnton, 189 Hudson-street, for a fine specimen of fancy turning. *Diploma.*

Aaron E. Cogswell, New-York, for a good specimen of plain turning, (tool handles.) *Diploma.*

STOCKS.

Mrs. P. Van Dyke, for the best specimen of stocks. *Diploma.*

W. H. Rodgers, Boston, Mass., for the 2d best specimen of stocks. *Diploma.*

James Buckridge, 175 Nineteeth-street, for the best specimen of bristle stock frames. *Diploma.*

New-York Stock Frame Manufacturing Company, a large and excellent specimen of stock frames made on Goodell & Harvey's power loom. *Silver Medal.*

A great improvement in manufacturing a useful article. We find the enterprize and ingenuity of these gentlemen, exercised upon many of the most common articles in present use, a field of labor inviting many.

MACHINES AND MODELS.

Hiram Phelps, Williston, Vermont, for the best mortising and tenoning machine. *Silver Medal.*

Among the very many mortising and tenoning machines, not before exhibited, the judges gave this the medal. The operation is very beautiful, and in an establishment using steam or water power, we have no doubt that it would prove a useful machine.

John McClintoc, 7½ Bowery, for the 2d best specimen of mortising and tenoning machine. *Diploma.*

Andrew Morse, jun, Boston, Mass., for the model of a ship's capstan. *Diploma.*

H. C. Roberts, Seneca Falls, New-York, for the best churning machine. *Silver Medal.*

J. J. Halsey, New-York, for the 2d best churning machine. *Diploma.*

Samuel S. Allen, for a good specimen of ordinary lever horse power. *Silver Medal.*

Sewell Gleason, Franklin county, for a revolving plane or horse arch power. *Silver Medal.*

A very good method of applying the weight and strength of a horse, for intermitting labor.

Exchange Engine Co., No. 3, Newark, New-Jersey, for the best fire engine. *Gold Medal.*

These engines were most splendidly finished, we hope for the good people of Newark, as well as of New-York, that they may be more looked at than used—in our own case, we fear, we hope without much prospect of success.

Fire Engine Co. No. 15, New-York, for the 2d best fire engine. *Silver Medal.*

E. S. Scripture, Paris, Oneida county, New-York, for a superior notarial press.—*Gold Medal.*

A press possessing decided advantages for the particular use for which it is intended.

A. B. Smith, 7½ Bowery, for a church steeple clock, a good article. *Silver Medal.*

M. N. Stanley, & Co. 244 Water-street, for an excellent roasting machine, on a new principle. *Silver Medal.*

J. & C. Bruce, Jersey city, for the best cracker and biscuit machine, a gold medal awarded last fair. *Diploma.*

Thomas Blanchard, New-York, for a self directing turning lathe. *Gold Medal.*

One of the most elegant inventions of modern times. The turning of gunstocks and shoe lasts, was a thing unheard of, and much laughed at when proposed.

We have witnessed the application of the same lathe to the turning of ship blocks—the machine for which purpose, (and also for dead eyes,) we had the pleasure of seeing in operation last spring. The block machine does Mr. B. the greatest credit—more especially as we all have before us, the the apparatus of Brunel at Portsmouth, Eng. which has hitherto been considered the ne plus ultra of art ; but which must now yield to that of Blanchard.

Benjamin Lapham, Waterford, Saratoga county, for an improved power loom. *Gold Medal.*

We were highly delighted with the operation of this loom. It appears to possess several important advantages over other forms. For a detail of the proposed gain in this machine, we refer to the descriptions following this list.

W. P. Brayton, New-York, for an improved throstle spinner. *Diploma.*

A. M. Wilson, Rhinebeck, New-York, for a mowing machine, or grass and grain cutter. *Gold Medal.*

By this machine much time is gained, and labor saved at a critical season of the year.

See description, written by an agriculturist of some note ; a cut is also given of the machine in operation.

Benjamin Brundred, Paterson, New-Jersey, for a blowing machine. *Silver Medal.*

John Peckham, Newport, Rhode Island, for a mortising and tenoning machine.—*Diploma.*

D. K. Minor, New-York, for (Page's) mortising machine. *Diploma.*

This machine is in great request among carpenters, being portable and of simple construction.

A cut and description will be found on another page.

Wandle Mace, 249 Elizabeth-street, for a post mortising and rail sharpening machine, (a model.) *Diploma.*

This machine will be of great service to armers, saving the labor of 8 or 10 men a day. Portable and simple in its construction.

Nathan P. Bean, for a winnowing machine. *Diploma.*

Tucker, Baldwin & Co., Guilford, New-Hampshire, for a shingle and clapboard machine. A. Wakeman, agent, 187 Broadway. *Silver Medal.*

This machine invented by Mr. Gors, of Millford, N. Hampshire, is intended to cut lath, shingles and clap boards, by slightly altering certain adjustment in the same machine. The simplicity is a great recommendation to this saw. It is of great service in sawing up slabs and waste stuff.

John Folsom, Hallowell, Maine, for a rotary brush machine. *Diploma.*

D. L. Sherwood, New-Windsor, New-York, for a patent windlass. *Diploma.*

Alfred Thompson, 58 Orchard-street, for a churn of beautiful workmanship. *Diploma.*

Charles H. Baldwin, 185 Hester-street, for two churns of beautiful workmanship.—*Diploma.*

Samuel S. Allen, for a threshing machine. *Diploma.*

Andrew Luke, Broadway, for a cider mill. *Diploma.*

S. Kibbe, Esperance, Schoharie connty, New-York, for one cheese press. *Diploma.*

Bates, Hyde & Co., Bridgewater, Mass. for a hand cotton gin. *Diploma.*

T. & N. Sawyer, 235 Bleecker-street, for an improved copper pump for wells and cisterns. *Silver Medal.*

John Burt, Tall River, Mass., for a patent self adjusting water wheel, manufactured by J. S. Anderson, 163 Chapel-street. *Diploma.*

E. Whitfield, William-street, for a frictionless pump. *Diploma.*

Thomas C. Barton, New-Jersey, for a forcing and suction pump. *Diploma.*

Erastus A. Holton, Westminister, Vermont, for a hoop shaving machine. *Diploma.*

A very useful apparatus for coopers.—With proper attendance it is said that 1000 hoops a day can be turned out.

The machine costs but 12 or 15 dollars, and we should think would save its cost in a short time.

Isaac Wiltberger, 47 Robinson-street, for a machine for corking bottles. *Diploma.*

Charles Parke, 71 Hammersly-street, for a rope serving machine. *Diploma.*

A. B. Smith, 7½ Bowery, for a watch clock. *Diploma.*

Henry Sperry, 204 Bowery, for a specimen of eight day clocks. *Diploma.*

Erastus A. Holton, Westminister, Vermont, for a portable grist mill and vegetable cutter. *Silver Medal.*

The advantages of the vegetable cutter to farmers will be great. A boy, we are told can cut two bushels of potatoes, or turnip per minute, leaving the pieces ¼ of an inch thick.

Ira Gay, Nassau, New-Hampshire, for a sash planing machine. *Diploma.*

W. H. & S. Nichols, 252 Water-street, for a pair of scales of good workmanship. *Diploma.*

E. & T. Fairbanks & Co., St. Johnsbnry, Vermont, for a platform scale. *Diploma.*

Wm. R. Nevins, corner Greenwich and Christopher-streets, for a model of a biscuit machine. *Diploma.*

Cornell Machine Company, office 180 Broadway, for the best stave machine. A Gold Medal having been awarded last year. *Diploma.*

Decidedly the best stave machine in the country. There is the least possible waste of stuff, while the staves are very neatly finished. In a former number of this work we have given cuts and description of the machine to which we refer.

No one having timber of the proper sort, and spare power, should be without this machine, it would return a very handsome profit.

H. & C. Ripley, West Springfield, Mass., for the 2d best stave machine, first time exhibited. *Silver Medal.*

Another stave machine on an entire different principle. It is more simple than the last, but it appears to us that the saw is of a shape, and size, difficult to make; the waste of stuff considerable, and the consumption of power great, while the staves are not delivered in a smooth state.

In many situations however its superior portability, and simplicity, might render it very desirable.

American Hydraulic Company, for a rotary pump, Wm. C. Wilcox, agent. *Diploma.*

James Maxwell, 259, Bowery, for a self feeding corn sheller. *Diploma.*

Duncan & West, 2 Little Green-street, for one patent mangle. *Diploma.*

Thomas Blanchard, New-York, for a new method of boat fastening. *Diploma.*

A curious invention. A boat was exhibited that had been in use for two years in our harbor, the sides of which were only *three sixteenths of an inch thick*, and through which *we thrust a pin.*

Sockets are fastened upon the sides, through which a transverse iron wire is passed giving the shape to the boat—the sides are strung, as it were, upon this, and secured by a screw and nut on the gunnel.

A boat so constructed, can be taken apart and put together, using only a screw wrench. This boat has an advantage in being able to resist all twisting or blows upon the side, reminding one of a basket, rather than a boat.

This and the following invention, designed to remedy some of the defects of the common circular saw, are both contrivances of the fertile brain of Mr. Blanchard.

Thomas Blanchard, New-York, for a model of a circular saw mill. *Diploma.*

Daved M. Cradit, Ithaca, New-York, for a lathe cutting machine. *Diploma.*

The advantages proposed to be gained in this lath cutter, are the rapidity with which they can be made—the saving of stuff, no saw being used, and the superior quality of the lath. Cross grained, or knotty wood, works up well in this machine.

A. F. Bright, Onondaga county, New-York, for a washing machine. *Diploma.*

H. Huxley, 79 Barclay-street, for a hand power corn sheller. *Diploma.*

J. R. Newell, Boston, Mass., for a knitting machine. A Gold Medal having been awarded last year. *Diploma.*

A very pretty and ingenious knitting machine, on which caps, stockings, shirts or drawers can be wrought, as well as suspenders and other narrow articles. The operation is a beautiful imitation of hand knitting.—The contrivance by which the delivery of the yarn is regulated is very ingenious.

We are afraid that the knitting ladies will look upon this as a formidable rival.

George Swan, Oneida county, for a patent forge back. *Silver Medal.*

Herrick Aiken, Dracut, Mass., for a leather splitting machine. *Diploma.*

Robert Rankin, Baltimore, Maryland, for a machine for moulding bricks. *Diploma.*

Thomas H. Dollay, for a naval fid for stretching straps for blocks. *Diploma.*

P. N. Pease, Brainbridge, New-Jersey, for a model of a machine for threshing clover. *Diploma.*

S. Spinning, Eighth-street, for a machine for cutting sausage meat. *Diploma.*

J. S. Shuler, Lockport, New-York, for a straw cutter. *Silver Medal.*

Greenleaf, Shepard & Cumberland, Paris, Oneida county, New-York, for a rotary steam engine. *Silver Medal.*

A rotary engine not differing (as far as we can perceive) in principle from most others. Its action was very pretty, and the power over it, as to stopping and reversing complete. We did not have an opportunity of seeing it while attached to one of the saws.

Warren P. Wing, Troy, New-York, for a mill bush and lubricator. *Diploma.*

P. Williamson, Division-street, for a model of a newly invented sofa and settee bedstead. *Diploma.*

John C. Blauvelt, Rockland county, New-York, for a stone eradicator and grind stone. *Diploma.*

Paul Stilliman, for a model of a steam engine. *Diploma.*

Two working models and one miniature model of steam engine—the working models, very well made.

Henry H. Storms, 47 Robinson-street, for a steam engine. *Diploma.*

John M. D. Keating, Peck-slip, for a miniature model of a steam engine, weighing 3 ounces.

John Landmark, 3 Roosevelt-street, for a fine lemon squeezer. *Diploma.*

Curtis, Babbitt & Stafford, Utica, New-York, steam hydraulic engine. This is an apparatus for raising water by the application of steam for the purpose of using the water when so raised as a water power applicable to an ordinary over-shot or other wheel. The examination of this process—which has been in operation during the Fair, has excited a deep interest. The committee in their endeavor to arrive at a just conclusion as to the utility of this ingenious contrivance, have availed themselves of the suggestion of several scientific gentlemen who attended the fair. Its operation would seem to promise valuable results—at the same time, the committee find that no means existed, owing to the hasty manner of putting the machine in operation, of truly testing the power and quantity of steam used in raising and supplying a given quantity of water. While, therefore, the committee are not prepared to say that by this arrangement a greater effect can be produced in propelling machinery by using water as an intermediate agent, than by the direct application of the steam itself,—they cannot deny but such may, on a more thorough test, prove the result. Without therefore giving a decided opinion, and recommending the invention of this mechanical arrangement by a premium, on the part of the Institute, the committee regard this effort evidence of great genius and as giving such high promise of ultimate beneficial results, as to warrant the continued perseverance of the enterprising and scientific gentlemen, who have so laudably embarked in this enterprise.

The judges had not sufficient data for ascertaining the economy of this machine—it appeared to us a revival of the Margins of Worcester's first method of using steam.

SIGN PAINTING AND IMITATIONS OF WOOD AND MARBLE.

Kennedy & Alford, 505 Grand-street, for the best specimen of manuscript sign painting. *Diploma.*

John Gibbs, 151 Front-street, for the best

specimen of ordinary sign painting. *Diploma.*

John J. Roach, 76 Cedar-street, for a block letter sign, (American Institute.)—*Diploma.*

W. & J. Gibson, Bowery, for the best specimens of imitation wood and marble, ground glass, damask, and silk tapestry.—*Silver Medal.*

The imitations of wood are the finest we have seen, excelling in beauty the common specimens of the wood itself.

The marble was likewise very well done.

John Frost, 50 Roosevelt-street, for specimens of ornamental sign painting and imitations of marble. *Diploma.*

Imitations of marble on glass—a very good idea, and very neatly executed. The deception is perfect.

MATHEMATICAL AND PHILOSOPHICAL INSTRUMENTS, &C.

E. N. Byram, Sag Harbour, Long Island, for the best large orrery, or planetary machine. *Gold Medal.*

We have understood that this orrery is the work of a young man, disabled for many years in his lower extremities, and who, without any of the usual instruction, constructed this suspended orrery—a most ingenious piece of mechanism.

Brown & Francis, 252 Broadway, for the best orrery, tellurian, and models of the human eye, for the use of schools. *Diploma.*

The school apparatus, designed to carry out the more improved systems of education, now adopted in our seminaries, will prove a powerful auxiliary to the well informed teacher.

The workmanship is good, and the prices are moderate.

Brown & Francis, 252 Broadway, for the best electrical machine, and air pump. *Silver Medal.*

The electrical machine was very well made—the air pump, as far as we could judge from inspection, a very creditable article. It has a very great advantage in combining the exhausting and condensing power in the same machine.

Doct. Jonas Humbert, junior, 14 Roosevelt-street, exhibited a magnificent electrical machine, which attracted great attention, and was almost continually surrounded by crowds of admirers. This machine, with the accompanying apparatus, was constructed, and is employed for medical purposes. Doct. Humbert deserves the thanks of the committee for his enterprise and ingenuity in getting up this costly and useful apparatus, so appropriate to the purposes for which it was intended.

Dr. Humbert was decidedly the most popular man at the fair.

John Roach, 4 Wall-street, for the best specimen of thermometers, barometers, and surveyor's compasses. *Silver Medal.*

Mr. Roach's instruments are characterized by great neatness and accuracy of construction.

His barometer we have heard highly praised—he uses a glass cistern, thereby ensuring a correspondence between all his instruments, a point of vital importance in meteorological observations.

Timpson & Swan, 259 Water-street, for the 2d best specimen of surveyor's compasses. *Diploma.*

Mark E. Swain, 67 Division-street, for a specimen of glazier's diamonds, for cutting glass, and surveyor's chains. *Silver Medal.*

The chain we considered a very fair piece of workmanship.

GLASS AND EARTHEN WARE.

Cut glass is one of the most elegant of modern luxuries, and the specimens exhibited were beautiful—we particularly admired the taste displayed in the form and pattern of the various articles.

The stone ware, also displayed a variety of substantial vessels.

Joseph Baggott, Liberty-street, for the best specimen of cut glass and cutting.—*Silver Medal.*

Bonnell & Bradley, 149 Broadway, for the 2d best specimen of cut glass and cutting. *Diploma.*

Michael Lefaulon, Salamander works, for a beautiful specimen of stone ware. *Diploma.*

MISCELLANEOUS.

R. & W. Robinson, Attleborough, Mass., for a most splendid specimen of buttons.—*Gold Medal.*

These buttons are well characterized in the catalogue as splendid; the beauty of these patterns, added to the richness of their finish, will go far to render them fashionable.

D. Berrian, 357 Pearl-street, for a beautiful specimen of brushes and bellows.—*Silver Medal.*

Mr. Berrian has certainly displayed great ingenuity and taste in this line. No articles belonging to the household and toilet, comes more frequently under the eye than the brush, and neatness of form is consequently a great commendation. If any one will take the trouble to count up the various brushes in use about him, he will be astonished at the number—we were truly so when first called to notice it. Among others we consider the flesh brush in itself a complete medicine chest, and as indispensable as a hair brush.

Johnson & Co., cor. Cedar and William-streets, for the best specimen of perfumery, Cologne water and fancy soaps. *Silver Medal.*

Josiah Burton, 390 Pearl-street, for the best specimen of confectionary articles.—*Diploma.*

T. G. Hodgkins, 49 Courtland-street, for the 2d best specimen of confectionary articles. *Diploma.*

Benjamin Sherwood, 321 Fourth-street, for the best specimen of fire proof safe or chests. *Silver Medal.*

Truly a safe. This was one of the first articles at the fair that attracted our attention.

We have always considered a double chest as the true form for protection against fire. The communication being only established in two points, and the interior of the outer chest being a very bad conductor of heat, the most perfect degree of safety is attained. A chest was exhibited which had undergone a severe heat in a furnace.

At the end of the article, we shall give an account of the experiment in the inventor's iron works.

Jesse Delano, 97 Water-street, for the 2d best specimen of fire proof iron chests.—*Diploma.*

T. W. Whitley, Paterson, New-Jersey, for an improved window sash and show case. *Diploma.*

Robert Morrison, 159 East Broadway, an apprentice, for a small mantle piece. *Silver Medal.*

Mrs. Susan Newell, 64 Gold-street, for a specimen of flags. *Diploma.*

Mrs. C. Pierson, 124 Nassau-street, for a specimen of flags. *Diploma.*

U. Warren, 350 Houston-street, for one septanataria table top. *Diploma.*

A very rich piece of furniture—the border was of Scagliolia.

Henry Durell, 216 William-street, for specimens of metallic combs. *Diploma.*

Ward & Bell, 227 Washington-street, for the best specimen of preserved birds. *Diploma.*

Mrs. S. Little, 440 Washington-street, for the 2d best specimen of preserved birds.—*Diploma.*

E. Guillanden, for fine specimens of pre. served birds. *Diploma.*

William McDougal, 85 Sullivan-street, for a specimen of repairing china or earthenware. *Diploma.*

New-Haven Verd Antique Marble Company, New-Haven, Conn., for fine specimen of marble, (a chimney piece.) *Silver Medal.*

No country can vie with ours in beauty and variety of marble. The discovery of this quarry is of recent date—and the marble bids fair to come into general use.

The chimney piece attracted universal attention.

Mrs. Gould, 1½ Ann-street, for fine specimen of pickles. *Diploma.*

Mrs. Gould seemed determined to make our mouths water, crowds stood admiring the tempting display of sour luxuries.

Harris & Wynans, 65 Canal-street, for fine specimens of paper hangings. *Silver Medal.*

E. & S. S. Rockwell, 192 Broadway, for fine specimens of vault lights. *Silver Medal.*

If any one has had the misfortune to slip upon, or fall though one of the old fashioned vault grates, (and who has not,) he needs no recommendation of this neat and popular light.

Henry Hannington, 290 Broadway, for a variety of splendid transparencies. *Silver Medal.*

Mr. Hanningtons luminous conceptions are well known to every inhabitant of Gotham.

John McCoy, apprentice, 205 Duane-street, for one cedar pail of superior workmanship. *Diploma.*

Robert Lawrence, apprentice, 205 Duane-street, for one cedar pail of superior workmanship. *Diploma.*

J. B. Roberts, 452 Broadway, for fine specimens of chimney tops. *Diploma.*

Barnard Slate Company, Bangor, Maine, Walter Janes, agent, for a fine specimen of slate. *Silver Medal.*

Joseph Richards, 175 Broadway, for fine specimens of gold spectacles. *Diploma.*

Robert Usher, 513 West-street, for fine specimens of preserved beef and hams.—*Diploma.*

Boardman & Hart, 6 Burling-slip, for superior specimens of Brittania ware.—*Silver Medal.*

This firm has long been known, and their ware highly esteemed, but we think the pieces of Brittania ware, displayed on this occasion, were finer than any we have before noticed.

Pupils of the Assylum for the Blind, for a handsome specimen of rugs. *Silver Medal.*

Creditable alike to the "blind," and to those benevolent individuals, who have with praiseworthy zeal, give their whole time to the improvement of the condition of their unfortunate brethren.

John Smith, 217 Water-street, for a superior specimen of jappaning. *Diploma.*

Samuel Judd, Water-street, for beautiful specimens of sperm candles. A Silver Medal awarded last year. *Diploma.*

Henry W. Oliver, 280 Division-street, for a portable meat safe. *Diploma.*

Doct. J. Francis, Chambers-street, for a fine specimen of artificial eyes. *Diploma.*

Eyes for the blind, as good in appearance, at least, as the original organ. This branch of manufacture should prosper in those parts of the world where gouging is practised.

Marble Cement Company, 180 Broadway, for fine specimens of marble cement, N. H. Gale, agent. *Silver Medal.*

Not satisfied with the genuine marble, we must have imitation, possessing, however, this advantage, that marble cement can be applied to the exterior of a building, in cases where marble could not be afforded for even a part.

Wm. Chandless, 6 Clarkson-street, for specimens of manufactured German silver. *Diploma.*

Doct. Lewis Feuchtwanger, 377 Broadway, for specimens of German silver in the crude and prepared state, of his own manufacture. *Silver Medal.*

The silversmiths must look to Dr. Feuchtwanger. His display of forks, spoons, ornaments, &c., was very fine—a casual observer would be deceived, and suppose them to be of genuine silver. This composition is becoming daily more popular. For mathematical and astronomical instruments, it is decidedly the best material.

Mr. Morton, for a design of a certificate of membership for the chamber of trade.—*Diploma.*

Martin G. Johnson, Jamaica, Long Island, for specimen of maps executed with the pen. *Diploma.*

Francis Murphy, 756 Broadway, for the best specimen of water proof blacking. *Silver Medal.*

Charles Thompson, 28 Pitt-street, for the 2d best specimen of water proof blacking.—*Diploma.*

W. & J. Crolius, 400 Water-street, for a model of a club boat made from old iron sides. *Silver Medal.*

The beauty of this model together with the association, with the name of Old Ironsides, rendered this an object of great curiosity.

Joseph C. Kent, 734 Greenwich-street, for a model of a boat. *Diploma.*

The Redford Glass Company, for a specimen of window and crown glass, Charles Goff, agent, Maiden-lane. *Diploma.*

Miss Jane Stewart, has exhibited two paintings in oil, viz. a lady in the costume of Charles the Second, and a serenade by moonlight on the lake. Although too late for competition, are considered beautiful specimens.

Mrs. Wm. Niblo, for a superior pumpkin pie, made of the great pumpkin exhibited during the Fair, weighing 140 lbs. *Diploma.*

American Cement Company, for two busts and a lion made of cement, Obadiah Parker, Syracuse, agent. *Diploma.*

Alfred T. Serrell, Sixth Avenue, for fine specimen of ornamental inlaid boards for piano fortes. *Diploma.*

Very pretty workmanship from a young artist—in whose whole family the constructive talent is prominent.

James E. Serrell, Sixth Avenue, for fine specimens of brush blocks. *Diploma.*

S. W. Stockton, Philadelphia, for the best specimen of incorruptible teeth, maxilary bones, skull, &c., and of mechanical dentistry. *Silver Medal.*

These teeth were good substitutes for that necessary apparatus, which from disease or accident we sometimes lose prematurely—but we were partcularly pleased with the skull, showing the provision of nature in reference to the first and second teeth.

We dare to say that many received from it much more correct notions than they formerly entertained in regard to their teeth, even though they are always in their mouths.

CABINET WARE.

Bishop & Breckells, 450 Broadway, for the best sofa bedstead, of superior workmanship. *Silver Medal.*

H. Brunswick, 7½ Bowery, for a sofa bedstead, approved for its design, convenience and usefulness. *Diploma.*

G. & W. H. Jennison, cor. Charlton and Varick-streets, for an improved refrigerator. *Silver Medal.*

A neat piece of furniture, and a most desirable article of household economy—particularly when the thermometer indicates 80° or 90° Fahr.

Brown & Ash, 191 Bowery, for a double action revolving and self acting chair.—*Silver Medal.*

This chair affords facilities for every change of position calculated to relieve the tedium of a sedentary life.

The perpendicularity of the books to the axis of vision is ensured, while the chest can be fully expanded.

Decidedly the greatest luxury to be found in a study.

CHEMICALS, &C.

J. J. Tobin, (Fort Lee Chemical Works,) for the best specimen of chemicals. *Silver Medal.*

Kipp & Cordes, 55 Forsyth-street, for a handsome specimen of starch. *Diploma.*

Wm. Sturdivant, 474½ Broadway, for the best specimen of white sperm oil. *Diploma.*

W. H. & S. Nichols, 252 Water-street, for scales for apothecaries'. *Diploma.*

Jones & McDonald, 83 Fulton-street, for a fine specimen of apothecaries' scales. *Diploma.*

CARVING AND GILDING.

Kreps & Smith, 22 Rivington-street, for the best specimen of gilding. *Diploma.*

Solomon Pancoast, 54 Spring-street, for a fine specimen of polished white and mahogany doors. *Diploma.*

Thomas Godwin, 169 Maiden-lane, for the best specimen of gilding on glass. *Diploma.*

AGRICULTURE, &C.

We are glad to find the Institute paying particular attention to agriculture. The corn of Mr. Johnson was examined on the ground by a committee, several stalks of unusual size were exhibited.

The mammoth vegetables raised our standard of comparison in regard to size. As large as a pumpkin, we shall interpret in a very different manner, after having seen the one at the fair.

The various samples of honey, were quite deserving of notice, the beauty of the article, and the ingenuity displayed in the construction of the hives pleased us much.

Barret Johnson, Brooklyn, Long Island, for a specimen of corn from a field of about 10 acres, on the farm of Gen. Jeremiah Johnson. *Silver Medal.*

Robert Thompson, Flushing, Long Island, for early Dutch drum head cabbages of uncommon growth, weighing from 35 to 42 lbs., each. *Diploma.*

James H. Colyear, Newtown, Long Island, for a bunch of 100 onions, weighing 120 lbs. *Diploma.*

C. Bergen, Brooklyn, Long Island, for specimens of white and red beets of an uncommon large size. *Diploma.*

N. Cowenhoven, New-York, for a specimen of pound pears, 13 on a twig, of 8 in-

ches in length, weighing 8½ pounds, from his farm on Long Island. *Diploma.*

James Durham, Harlaem, New-York, for an enormous pumpkin, the seeds of which sold for 12½ cents each. *Diploma.*

Charles T. Butting, for an uncommon sized pumpkin. *Diploma.*

David Ruggles, Newburgh, for a specimen of leaves from the Russia mulberry tree, of various years' growth cultivated by him. *Silver Medal.*

Francis Kelsey, Lodi, New-Jersey, for a fine specimen of honey and bees, the honey made from inferior Southern honey, as also an improvement for increasing the quantity. *Silver Medal.*

Levi H. Parrish, for a specimen of patent bee-hives, beautiful, convenient, and well arranged. Considered a meritorious article. *Silver Medal.*

Wilcox & Cone, West Bloomfield, Ontario county, N. Y., for the greatest quantity of first rate honey, part of a lot of 3700 lbs.—*Silver Medal.*

James Van Dyke, Brooklyn, Long Island, for the best specimen of mustard. *Diploma.*

John Spry, 596 Broadway, for the best specimen of flower stands. *Diploma.*

Specimens of ploughs, exhibited by John Weaver, of Maryland, Minor & Horton Peekskill, N. Y., and Andrew Drysdale, sen. of this city, will hereafter be tested by actual experiment, and the result published in the Journal of the American Institute.

CARRIAGES AND SLEIGHS.

In this line there were not many specimens, but they all obtained medals. The miniature carriage, and the sleighs were finished in a superior manner.

Daniel M. Grummon, Newark, New-Jersey, for a child's landau, a beautiful piece of workmanship. *Silver Medal.*

James Flinn, New-York, for a light pleasure waggon. *Silver Medal.*

Robinson & Vanderbilt, Albany, N. Y., for a Stanhope carriage and four sleighs, of superior workmanship. *Gold Medal*

SURGICAL INSTRUMENTS, &c.

Doctor A. G. Hull, 4 Vessey-street, for the best specimen of trusses. A premium having been awarded at three former Fairs. *Diploma.*

Doctor A. G. Hull, 4 Vessey-street, for an utero abdominal supporter. *Diploma.*

James Jones, Providence, R. Island, for a patent relief bedstead for invalids, an invention of great importance to the afflicted.—*Gold Medal.*

These sickbeds were so well liked, that the judges awarded medals to each.

Marcus T. Moody, Northampton, Mass., for an elevating spring bed, highly approved for its simplicity of structure, cheapness, and great utility. *Silver Medal.*

Williams Woolley, 422 Broadway, for an invalid bedstead, possessing many advantages over those now in use. A gold medal having before been awarded. *Silver Medal.*

We saw several articles during the fair, that have not been noticed in the catalogue.

The machine—wrought Stockbridge marble, Clark and Boynton patentees, was among the number; this was brought in too late for competition for the premium.

The block of marble was in a state ready for use, and as nearly 700 pounds had been lost in dressing, it is easy to imagine the saving in transportation. From the description and cut, on another page, the reader will perceive that the machine is original, and superior in its operation, to that of Hunter, patented in England. There is no danger of breaking off the corners, as in that machine, while more work can be performed in an hour, than a man by hand, can do in a day.

It is also said to leave the surface of the stone in a better state for polishing, than when dressed by hand.

We refer our readers to the figure, and its description.

There was also an ingenious wire cutting, and sharpening machine, by Mr. Thorp, of Cambridge, Mass. This engine is intended for preparing wire for calico printers, and pianoforte makers; is ingenious in its mode of operation, and a great labor saving apparatus.

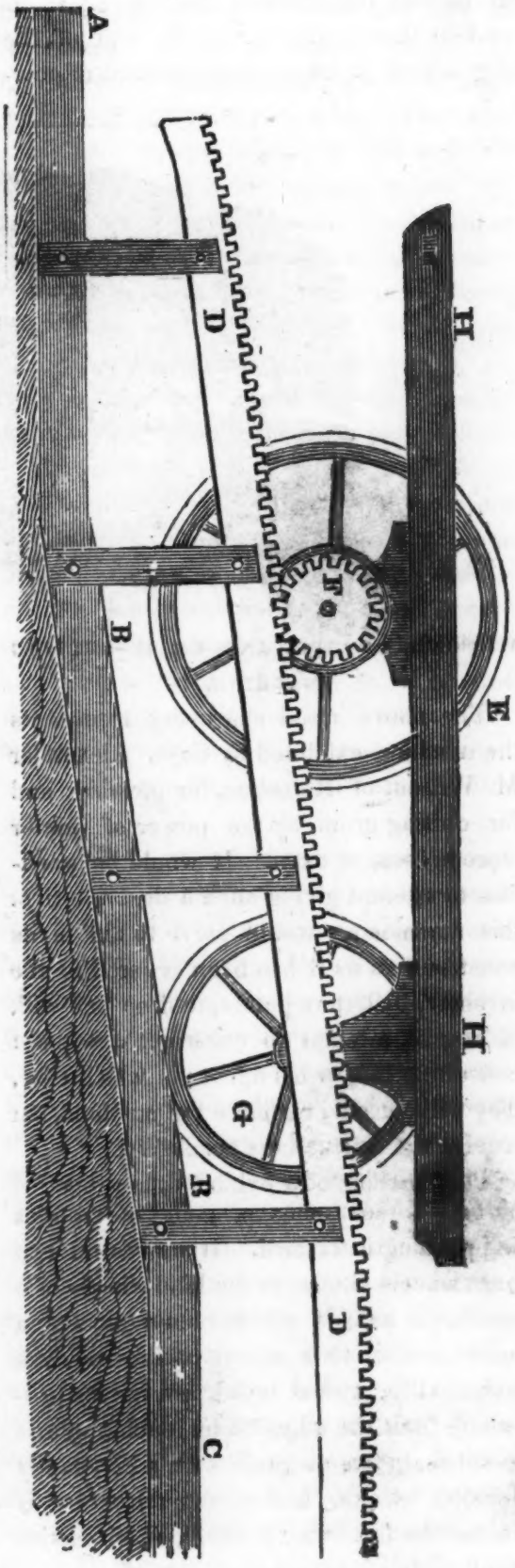
A few machines would suffice for those purposes in the whole country; though it can be adopted to a variety of uses, of a similar nature.

We also noticed several books, printed for the blind; no label was attached to them, and

we do not know whether they were printed in this country, or Europe. If of domestic origin we should have thought them worthy of a notice, at least, if not a medal.

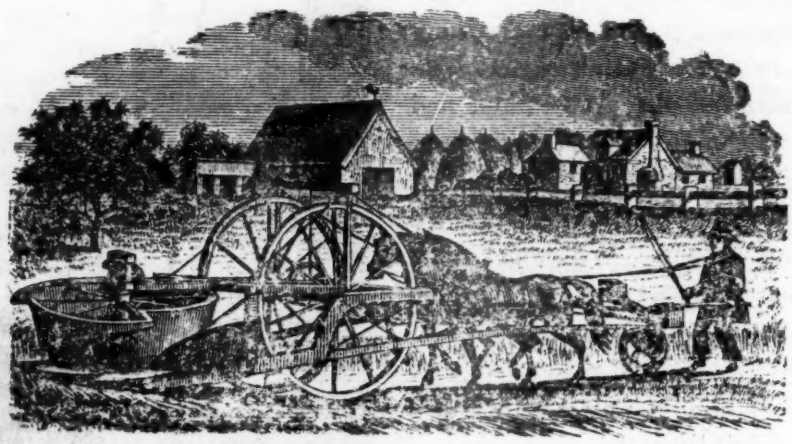
A preparation entitled Vegetable Skeletons, representing the seed vessels, of the Datura Stramonium, cleared of every thing but fibre, was to us an attractive object. The extreme neatness of the preparation, and the beautiful taste of the printed card, gave indications of our unusual talent for nicety, and order. We are entirely ignorant of the exhibitors name or sex. We should think that some thing of female style was shown in the arrangement, but are not certain. This same hand directed by such skill, would produce most beautiful preparations in different branches of natural history.

The annexed cut represents a new plan of ascending and descending inclined planes upon Railroads. A, B, C, represents the main track of which B, B, is the inclined plane. D. D. represents a rack rail, which is raised above the main track, to a sufficient heigh to receive the pinion or cogg wheel F. The rack rail may be attached to the main track or otherwise constructed, as may be found most expedient; the wheel F, is to be attached to the axle of the running wheel of the locomotive, as the wheel F, runs upon the rack rail, it raises the back of the engine to a sufficient height, that the frame H, H, is kept in a horizontal position, and consequently the water in the boiler keeps the same position in ascending and descending, as though the machine were runn ng upon a level track. G, is the forward wheel of the engine, which runs upon the main track. In ascending or descending, the rack rail should be extended at the summit of the plane, to a sufficient length to drag up the train of cars, and just high enough to let the large wheel E, clear the main track. It appears to me, that engines con-



structed on the above plan may be made to ascend considerable declivities; it is evident that by decreasing the size of the cog wheel F, almost any amount of power that would be requsite can be obtained; and likewise it is an easy matter to make all planes of the same inclinations.

A YOUNG MECHANIC.



WILSON'S MOWING AND GRAIN-CUTTING MACHINE.

The above wood engraving represents the machine exhibited by Capt. Alexander M. Wilson, of Rhinebec, for mowing and for cutting grain, by the power of one or more horses, or oxen. It would be needless to attempt giving such a description of this machine as would serve to aid in its construction, as it has been secured to the inventor, by letters patent, and no one will, of course, attempt to construct it without consulting him or his agent; in which case, they will not only examine the machine, but receive the instructions necessary.

The machine now exhibited, is propelled by two horses or oxen, going in the rear and pushing it forward. It moves on two large wheels similar to the hind wheels of a coach, the axle of which, communicates a rotary motion to a wheel which revolves horizontally, around which are knives projecting from the edge, under such angle as to cut the grass or grain with a constantly drawing stroke, and a superstructure is erected on this cutting-wheel, which carries it out and deposites it in the swarth.

We have not seen this machine in operation, cutting grass or grain, as the place of exhibition, of course, afforded none to cut; but from the testimony of gentlemen whose veracity and judgment in the case, cannot be questioned, and from the appearance of the machine, we feel warranted in our belief that it cannot fail to mark a new and important era in the system of agriculture. The machine can certainly be propelled forward by a common team, and if it goes forward we cannot see how it can fail to cut the grass or grain, where it is not interrupted by stumps or stones; and if the team walks two miles an hour, and cuts a swarth six feet wide, which is the width calculated, it must, cut a fraction over fourteen acres in ten hours; there being no time lost in sharpening, as the knives are provided with a self-sharpener, which operates when wanted.

The business of agriculture, is the first and noblest employment of the human family, and the two most important labors of the agriculturist are, the cutting the grain to feed himself and his fellow-creatures, and grass to feed his cattle. This labor owing

to its vast importance, and the critical time when it must be performed, generally commands a higher price than other agricultural labor ; and often, owing to the scarcity of hands at that time, the farmer is put to great inconvenience, and sometimes subjected to loss. With this machine the farmer with one man, and team of horses or oxen, can cut his grass and grain in the time they could be cut by ten men, and one machine would be sufficient for a considerable neighborhood. If this is not one of the most important and valuable improvements in the useful arts, we can scarcely conceive what would be.

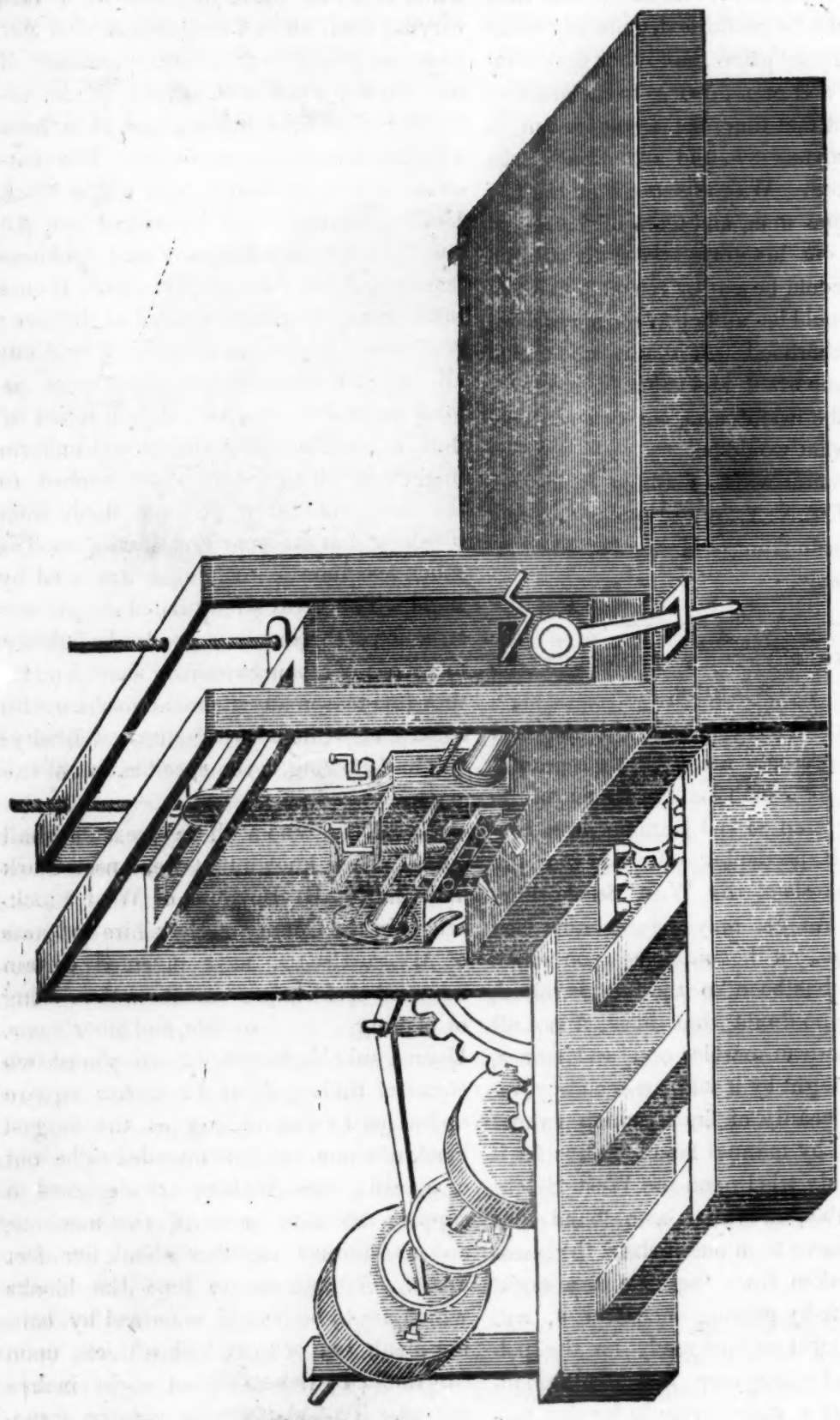
The inventor will be found at Rhinebec, Dutchess Co. N. Y., where application may be made, or to George Hanford's, Market Street, Albany.

CLARK AND BOYNTON'S STONE-CUTTING MACHINE.

This machine of which the annexed engraving presents an accurate representation, and for which Letters Patent of the U. S. were granted last Summer, was contrived with particular reference to the building marble of the West Stockbridge quarries. As yet only one machine has been erected, yet the principles upon which it operates has been so thoroughly tested, as to leave no doubt that most, if not all of the American marbles and sand stones, can be wrought by it with an accuracy, rapidity and beauty of finish, which cannot be equalled by manual labor. Thus far, it has been only tried upon the West Stockbridge marble, and it has been found that where no more than one inch in thickness is to be taken from the side of a block, the machine by passing once over it, will produce a level surface ready for the polisher. And experiment has also demonstrated, that a stone wrought by the machine, is more easily finished than one which is cut by hand. The machine, while in actual operation, cuts at a rate varying from 16 to 40 superficial feet per hour, according to the texture and size of the block ; short and narrow pieces requiring more time in proportion, than those which nearly fill the platforms. The machine now in operation, will cut a block 10 feet long and 3 feet square, or one 10 feet by 3 feet in width, and any thickness less than 3 feet down to 2 inches. It cuts the edge of the blocks as well as the face ; preserving the corners entire. It will cut all descriptions of straight mouldings, as for steps and cornice, and it will round or flute a column. The steady and uniform manner in which the tools are applied to the stone, not only prevents them from breaking, but the wear and loss of steel is much less than in tools that are used by hand. The great strength and simple construction of this machine, render its liability to get out of repair extremely small, and for the same reason any practical mechanic can operate it, without the slightest difficulty.

The following is the specification of the patent.

To all to whom these presents shall come. Be it known that we, Anson Clark and Charles B. Boynton, of West Stockbridge, in the County of Berkshire and state of Massachusetts, have invented certain new and useful improvements in the cutting or planing marble, and other stone. Upon a suitable foundation, are placed two sticks of timber, about 12 inches square and at least twice as long as the longest block of stone which is intended to be cut or planed ; these timbers are designed to support the other parts of the machine, and are framed together about five feet apart. A platform to hold the blocks which are to be planed, is formed by bolting plank, two or more inches thick, upon longitudinal timbers about eight inches square. This platform, for common purposes, should be about five feet in width and about 12 feet long, it is placed upon the



CLARK AND BOYNTON'S STONE-CUTTING MACHINE.

foundation timbers, and may slide thereon upon ways or slides, or upon friction rollers. In the centre of the foundation timbers, are placed four upright cast iron posts about seven feet in height and of any required strength. These posts serve for guides, in which the frame that holds the tools, is moved up and down by screws, or by a rack and pinions, according as the blocks to be planed vary in thickness. The tool frame is an oblong cast iron frame, fitted to move accurately in the guides of the upright posts, and is raised and lowered by screws, passing through the cross bar that connects the tops of the upright posts. In the lower part of this tool frame, is hung a horrizontal cylinder of cast iron, about five inches in diameter. This cylinder or shaft, rests in the tool frame upon journals turned on each end, so as to permit a motion on its axis, and one end of the cylinder or shaft, passes through the tool frame, far enough to allow the attachment of a lever upon the outside of the upright posts. This cylinder is acurately turned through its whole length, so that the cast iron block to which the tools are screwed, may slide upon it from one side of the platform to the other. Upon the under side of the cylinder, is cut a groove of about half an inch in depth, through its whole length, and to this groove is fitted a tongue in the tool block that prevents it from turning round upon the cylinder. The tool block is of cast iron, about eight squareinches, and is bored out so as to be nicely fitted to the horrizontal cylinder, and a strong screw passes from one side oft he tool frame to the other, and through the tool block above the cylinder, by which screw the tool block is moved upon the cylinder from one side of the platform to the other. Two sliding cast iron plates of about an inch in thickness, and of the same width of the tool block, are fitted to the tool block one upon each side. To these plates the tools are secured by screws, and the plates are moved up and down on the tool block by screws, so that the tools may be accurately adjusted to the surface of the stone, or to the depth required to be cut. There are projections both on the tool block and the sliding plates, through which these screws pass. A strong bar of iron, either cast with, or bolted to the top of the tool block, runs upwards about 12 inches, and between the cross bars that form the upper part of the tool frame. The use of this bar, is to steady the tool block, by resting alternately upon each cross bar of the tool frame, as one or the other set of tools is brought into operation. The screw which runs through the tool block horizontally, for the purpose of sliding it back and forth, along the cylinder, has a crank upon one end, and it may be moved either by hand or by machinery. Upon the under side of the center longitudinal timber of the platform, is a toothed rack into which works a pinion hereafter described, by which rack and pinion the platform is carried backwards and forwards beneath the tools. The pinion which works into the rack, is fixed upon a horrizontal shaft, lying beneath the platform, and across the foundation timbers. Upon one end of this shaft is placed a cog, wheel, which is moved by another cog, wheel, upon a second shaft, lying, like the first, across the foundation timbers, and parallel to the first named shaft. Upon this second shaft are two pulleys with a clutch between them. One of these pulleys is worked by an open, and the other by a cross band, so that they revolve in opposite directions, and by shifting the clutch, a reciprocating motion is communicated to the platform. The clutch is shifted from one pulley to the other, by means of a lever moving horizontally upon a joint or pin ; one end of this lever lies in the clutch, the other bent like an elbow, is so placed as to be struck by pins projecting from the edg, of the platform.

Upon one end of the horrizontal cylinder, is attached a lever on the out side of the tool frame and upwright posts. This lever hangs in a perpendicular position, and is used to shift the position of the tool block, by rolling the cylinder, so that the tools being placed upon opposite sides of the tool block, may be brought alternately into operatton, as the platform moves back and forth, and likewise to prevent the tools upon one side from dragging upon the stone, while those upon the other side are cutting. The lower end of this lever is attached to a clasp upon one of the upwright posts opposite the edge of the platform. This clasp is several inches longer than the width of the post, so that it can slide a short distance back and forth upon the inner side of this clasp is fastened a forked spring, which runs in a groove in the edge of the platform. The compression of the spring in the groove causes sufficient friction not only to move the lever as far as the clasp will permit, but also to hold it steady in its place.

Since the above was in type, we have received the following account of the mode of working, from the patentees.

In the description of our stone-cutting machine, we omitted to mention one method of working, which we then thought of but little consequence, but which subsequent experiment and reflection have convinced us, forms one of the most important features of the invention. Instead of using a tool-block, with two tools upon each side, which block is moved as you will see by the cut, across the blocks as its surface is cut away, we dispense with the tool-block, and the screw which moves it, and construct our cylinder, so as to set a row of chisels or points forward across the whole width of the platform of the block is so wide—thus enabling our machine to take off a portion of the *whole surface* of a block, at a *single cut*, or we effect the same object, by using a single tool, as wide as the stone to be cut. By lessening the depth of the cut, and increasing its width, we diminish the risk of fracturing the stone, and produce a better surface, at the same time, that we increase the capabilities of the machine. Thus a chisel, or sett of chisels, 8 inches in width, and cutting one eighth of an inch deep, works with the same rapidity as one, one inch wide, and cutting one inch deep, producing a better surface, and without any danger of fracture. This arrangement, as you will at once perceive, allows us to increase the strength of the machinery and power used, at pleasure, increasing in a corresponding ratio, the quantity of work performed in a given time. In the method of working the machine, which we described before, this could not be effected. We could not increase the motion beyond a certain speed, (about 15 feet per minute,) without destroying the temper of the tools, and we could not increase the depth of the cutting, without injuring the stone.

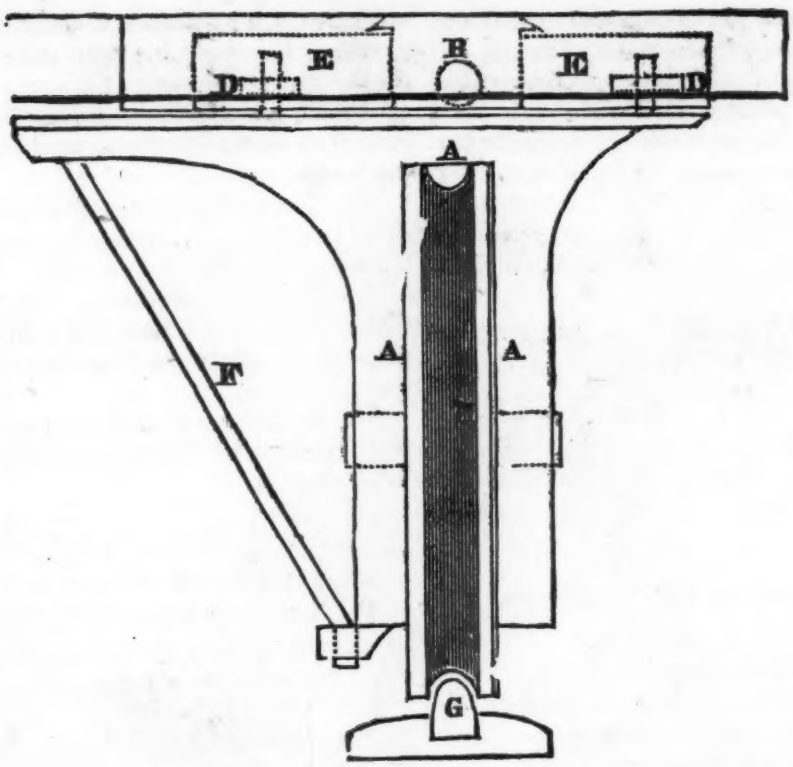
By the use of the wide tool, or many tools at once, no limit, other than the power at command, and the strength of the machinery, can be assigned to the rapidity with which stone can be wrought. We have used as wide a tool as we could secure in our present tool block, and with results that warrant all I have written above.

This also distinguishes the machine still more clealy than before, from the English or Scotch one, and I am the more pleased with this, because there are those, who not being able to purchase our patent at their own price, are making arrangements with Mr. Hunter to patent his machine in this country, thinking thereby to destroy our patent, or at least, affect its value, and this they do without understanding the principle of either machine, or the difference between them. Very respectfully,

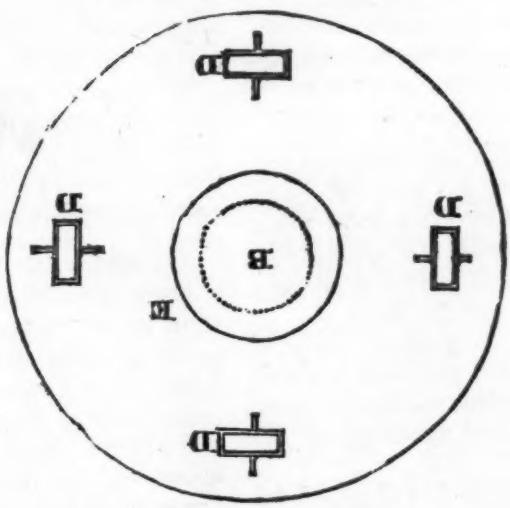
CHARLES B. BOYNTON.

IMPROVEMENT IN RAILROADS.

The following letter from Judge Wright was intended for the November number of



Top view of the metal plate E.



the Journal of the American Institute, but was excluded by the press of matter in relation to the 9th annual fair. The model is still at the repository 187 Broadway. As it is important, if it is an improvement, that it should be immediately known, you will do a service by publishing the letter, that practical engineers may examine and hear the explanations of Dr. Plantou, who will continue in town a few days.

NEW-YORK, Nov. 4, 1836.

Dear Sir. I have examined the model of a Railroad car and rails adapted thereto, now at the American Institute, invented by Dr. A. Plantou, of Philadelphia.

The action of the car whereby the forward motion given to it, adapts itself to curves of small radius, as well as tangent lines, is new to me, and appears to possess the very valuable property of greater security against run.

ning off the track, and also against breaking the axle. These are the cause of nearly all the injuries to limb and loss of life, which happen on our present Railroads.

If Dr. Plantou succeeds in introducing his improvements in the form of cars and rails suited to them, he will be entitled to be called a public benefactor, and will place the public under very great and lasting obligations.

Very respectfully,
I am dear sir,
Your ob't ser't
BENJ. WRIGHT.

T. B. WAKEMAN, Esq.
Corresponding Secretary
American Institute.
[Com. Adv.]

DESCRIPTIONS OF THE ENGRVINGS.

A The standard for the Wheel.
B Neck of ditto acting as a Pivot.
C Grooved Wheel working in the fork A.
E Metal plate at the bottom of the Cars.
D Friction rollers in the metal Plate.
F Side braces to steady A.
G Rail with rounded edges.

LAPHAM'S IMPROVED POWER LOOM, INVENTED BY BENJAMIN LAPHAM, OF WATERFORD, SARATOGA COUNTY, NEW-YORK.—PATENT.

The advantages of this improvement are, 1st. The shuttle is thrown with the same force and velocity, whether the motion of the loom is slow or quick; and the quantity or quality of the work is not affected by any irregularity in the speed of the loom.

2d. The saving of the expense of pickers, picker strings, and picker rod, and avoiding the loss of time consequent on the frequent regulating, breaking, and mending of the picker strings.

3d. By means of the whip roll above the warp beam, and over which the yarn passes, the tightness of the web is regulated, and kept constantly uniform; and, as the whip roll yields a little when the lathe beats up, the warp is much less liable to break.

The whip roll is so connected with the ratchet wheel that, when the loom makes cloth, the warp is uniformly delivered from the warp beam; and, if the web becomes too tight, it causes the whip roll to descend, and take a new notch on the ratchet wheel which turns the warp beam; while, if the web is too loose, the warp beam remains stationary till the proper degree of tightness is restored by weaving. By these means the cloth is rendered perfectly even, and of uniform thickness.

4th. The temples are so attached to springs as to be thrown back in case the shuttle or lathe strikes them, thus avoiding the danger of breaking the shuttle or the temples.—These temples also hold the web better, and form better selvedges than those in common use.

For further particulars, inquire of WALES & PLIMPTON, 40 Pine-street, or the *inventor*, Waterford.

WARREN'S PATENT THRASHING MACHINE.

This machine is formed for convenience, as it receives the unthrashed grain on either side, by a change of the hopper.

It cannot be injured by any stones or sticks passing through it, as it has no spikes to be broken or bent. The operating parts are of substantial wrought iron.

It thrashes all sorts of grain clean from the straw, and leaves the straw in a whole state, fit for binding. It requires but few hands to tend it, and but little power is necessary to thrash 200 bushels in a day.

Four horses will thrash 300 bushels in 12 hours, by having relief at half the time. One horse will do good business with the $25 Machine; that is, from 75 to 100 bushels, according to the nature of the grain.

Directions for Using.—Let a band from a drum or wheel of any power be put on the whirl to run easy. Let the tender push the grain in, and it will pass through in one second. It is thrown about fifteen feet. The cylinder must be raised, (by putting a piece of leather under the boxes,) for dry grain, to about half an inch, and let down to one-fourth of an inch for wet grain. The boxes should be oiled or greased often.

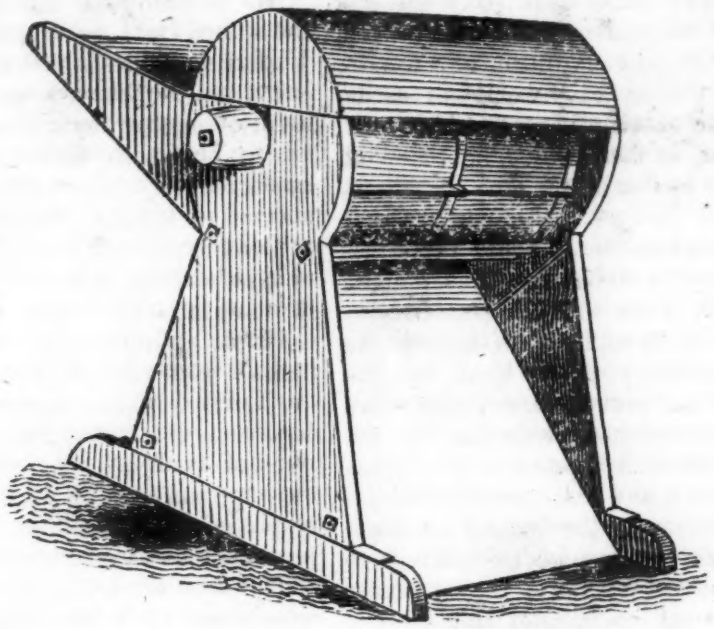
Price of Machines.—$20 for hand power, $25 for one horse power, $30 for two horse power, $40 for three or more horses, and $50 for extra sizes. A liberal discount at wholesale. All orders post paid will be punctually attended to. Address the inventor at 79 Barclay-street New-York.

E. WARREN.

N. B. Any man wishing to buy the pa-

tent (which was granted May, 1835,) for his county, shall have the same on very reasonable terms.

The Machines are easily made, being of the most simple construction and any Blacksmith and Woodworkman can build them. Draughts of an exceedingly strong and cheap horse power, which will not cost more than $20, and is made in the simplest manner, will always be given if reqired.



MR. COCHRAN'S IMPROVEMENT IN FIRE ARMS.

We copy the following account of Mr. Cochran's invention, and Adventures. It will be found highly interesting.

COCHRAN'S MANY CHAMBERED NON-RECOILING RIFLE.—This extraordinary invention of a young American, native of New-Hampshire, and which is now being for the first time exhibited to the public, at the Fair of the Americau Institute, Niblo's Garden, deserves more than a passing notice. There are circumstances connected with it, which give a peculiar, if not romantic, interest in the history of the arts of our country. If any thing were wanting amidst the multitude of extraordinary inventions which have, for the last half century, been recorded in the archives of our patent office, to illustrate and establish the pre-eminent claims of our country-men to genius of a high order, it would be that which forms the particular subject of our remarks.

Mr. Cochran's father was a lawyer, and afterwards a merchant of eminence in Enfield, N. H.; and the son, John Webster Cochran, was born there, and has invented the species of fire arms in question, was brought up to no particular business. At the very early age, however, of 16, he discovered a strong taste and passion for mechanical experiments, and was consiantly occupied in the construction of machinery, which his father approving of, unlike many other fathers, encouraged, and to further the wishes of his son, expended several thousand dollars in his behalf, in the cost of the different kinds of apparatus required.

When only 18, he made the discovery in question, but did not perfect it until three years after. He then went to France and England, and exhibited his model cannon to Louis Phillipe and William the IV. While at Paris in 1333–'34, he was requested by the Turkish Ambassador to explain it to the Turkish Minister at London, and accordingly went to Woolwich, and performed a series of experiments before the latter personage, which gave so much satisfaction that he urged Mr. C. to visit the Sultan at Constantinople, & for that purpose provided him with the most flattering recommendations to the Court of the Sublime Porte. Mr. Cochran arrived at Constantinople Febuary 11, 1836.

was received with great distinction, and introduced to the Sultan by the Grand Vizier. His Turkish Majesty was highly pleased with the experiments made with the model, told Mr. C. he was satisfied it would be generally adopted, and requested him to cast twelve pounders on the same principle. He was provided with elegant apartments in Pera, raised to the dignity of Master of Cannon, and furnished with as many workmen as he required for the accomplishment of his task. The treatment, in fact, which he received, was equivalent to that of the rank of an ambassador.

Mr. Cochran, however, finding there was no good foundry or mechanics, was obliged to undertake the work with his own hands; and though not brought up to the business of making machinery of any kind, by dint of much labor and perseverance, made himself all the necessary implements, the augers and the wooden apparatus for boring with horse power, and the preparations required for procuring the proper castings. By good fortune he succeeded entirely to his wishes, and cast and bored three cannon, two of one pound each, and the third a *twelve pounder*, which last was finished in a style as perfect as he could have desired. On the 14th September following, he proved this last piece to his entire satisfaction, in the presence of all the chief officers of the Turkish government, who were delighted with its execution, and made a highly flattering report to the Sulton. He fired it off in the presence of those officers to their utter astonishment 100 times in fifteen minutes. The Sultan, when he heard of it, would scarcely believe it, and directed Mr. C. to perform the same experiments in his presence. The most extensive preparations were according made for this important trial, which was to take place at Tarache, on the European side of the Bosphorus.

No less than 3000 troops were assembled at this spot. The Sultan at the hour appointed, came over from his summer residence on the Asiatic shore, rowed in one of his splendid *caiques*, and preceded by a long line of other boats of the same description. The one which announced the approach of the Sultan was manned by 40 oarsmen and came with even more lightning speed than that in which his august highness himself was seated. As the latter was seen nearing the wharf, Mr. Cochran, at the suggestion of Halil Pacha, the Sultan's son-in-law, and commander-in-chief of the land forces, fired off a salute of 21 guns (the customary number) with the experimental cannon, which consumed less than two minutes and struck the assembled multitude with the utmost amazement.

As the Sultan at this moment stepped on the wharf, Halil, accompanied by the Grand Vizier, and other dignitaries, ran to His Majesty, and the former, making the usual salaam of kissing the Sultan's foot, announced to him with feeling of exultation that could scarcely be repressed, the wonderful success of the machine cannon, as they appropriately named it. The Sultan arrived at his tent, then sent for the *master of the cannon*, the title which was given to Mr. Cochran, and after a short conference with him, in which Mr. C. conversed chiefly in the Turkish language, which he had partially acquired, the Sultan renewing his expressions of kindness, requested him to perform the experiment in his presence. His Majesty placed himself within a few feet of the piece, and Mr. Cochran commencing rather sooner than was anticipated, the Sultan, then with his back towards the cannon, was somewhat startled at hearing the explosions suddenly succeeding each other with such inconceivable rapidity. The cannon was fired 100 times as before in 15 minutes, during which the barrel acquired 650° of heat while the revolving cylinder which contained the charges was comparatively cool, being only 250° of the temperature. The Sultan's exclamation expressive of his delight was "God save the Americans—if such boys as you (Mr. C. being then but 21) can invent such things, what can your men do!"

He then asked him for the bill of expenses, and being told by Mr. C. it was left at his own pleasure, he went the next day at the request of the Sultan to visit him at his palace. The bag of gold he there received was truly an imperial present, and enough to make his fortune. The amount would scarcely be believed should we name it, and we do not feel ourselves authorized to specify the sum more distinctly than may be inferred from what we have said.

Mr. Cochran soon after returned to America, with an understanding that he should have a contract for supplying a large number of cannon of the pattern exhibited, whenever it could be agreeable to him to execute it.

These adventures of Mr. Cochran, yet a

youth, seeking in a foreign land that patronage and encouragement which were the proper measure and appreciation justly due to his pre-eminent talents, and which it is lamentable to be obliged to confess, his own countrymen would not have bestowed upon him, recall the similar examples of West, Fulton, Perkins, and others, and are calculated to reflect discredit upon our national reputation, inasmuch as Americans ought to be the first to reward these incentive powers which are so emphatically characteristic of, as well as honorable to the genius of our people.

DESCRIPTION OF THE INVENTION.—The invention of Mr. Cochran is adapted to every species of fire arms. The articles at present being exhibited by him at the Fair, are a model cannon similar to that experimented upon before the Turkish Emperor, and a rifle complete, which we shall now proceed to describe. He has fired this rifle 1200 times, 500 of which discharges were in rapid succession, and without producing any expansion whatever in the chambers of the cylinder, or giving it a greater temperature than 100 degrees of Fahrenheit. As many as 2000 discharges are required before the rifle will have been properly tested after the rule of the war department. Mr. C. is ready at any time to fulfil this compliment and go beyond it. This afternoon he will fire it at Niblo's Garden 500 times in succession. The cylinder is a solid piece of iron, revolving in the plane of the barrel, and occupying a position directly at the base of the barrel which it is in close contact with.—The dimensions of the cylinder are in diameter about 4 inches, and in thickness seven-eighths of an inch. There are in this one, nine open chambers for the charges, which chambers are perforated upon the periphery and converge, like the radii upon the centre. The cones on which the percussion caps are placed, form another series of radii concentric and within the circuit of the chambers—a solid metallic partition dividing all the caps from each other. Each cone for the cap communicates with its appropriate chamber, and opens in the centre of the chamber, so that the whole charge of powder is ignited at once, by which the explosion of all the powder is made in one half the time of ordinary rifles, and therefore so much the more force given to it, and consequently a much less charge is required—the weight of the charge being only *one grain and a half*.

As each chamber in its revolution comes in exact line with the tube of the barrel, the cock strikes the percussion cap, and the explosion takes place instantaneously. The chambers, as they successively come into a line with the barrel in the revolutions of the cylinder, are momentarily retained firm in this position by the *regulating dog* connected with the cylinder where it joins the breach, and the pin of which dog catches in the small perforations made at equal distances for its reception. Nor can the cock strike the percussion cap until it is in exact position, for if the chamber is not in its proper place, the socket into which the hammer of the cock falls has presented to it only the metallic partitions between the cones, and therefore on striking these no explosion can take place. Nor can any accident happen from explosions of the other chambers contiguous to the one in connection with the barrel. Such an accident never did happen with this rifle, and if it should, the direction of the chambers is such that their charges would do no mischief. Nor can the flash of the powder in the chamber in a line with the tube of the rifle be communicated to the other chambers, as the joint of the cylinder where it comes in contact with the barrel is so close that it is air tight, and will not permit of such extension of the ignited powder. The charge of one grain and a half of powder requires a size of ball of 50 to the pound, and the force is sufficient to perforate eight boards each of one inch thickness at the distance of 60 feet. The arrangement of the ball is another beautiful and ingenious invention. Their diameter is exactly fitted to the chamber, but larger than the diameter of the tube of the barrel by an incremen equivalent to the depth of the spiral creases on the inside of the tube. So that no patch is required as in other rifles, for it is forced into the tube of the barrel and exactly fitted to it by becoming compressed into a cylindrical shape, and its sides grooved by the creases of the barrel, whereby it is kept firmly in its course, and move steadily and with such precision, and so closely wedged that there is no *windage* can get before the ball, and give an irregularity to its motion—a serious inconvenience to which all other rifles are liable. The aim of Mr. Cochran's rifle therefore is always deadly and sure.

By this arrangement there is another additional power acquired, for you have the entire force of the charge behind the ball until it leaves the muzzle, and in the same proportion is the velocity augmented, and, therefore, a less charge required on this account, as well as on account of the manner in which the percussion caps communicate with the chambers, as already stated. The creases of the barrel, as we before said, keep the ball exactly in its place throughout its whole course to the muzzle, whereas the patch, always used in ordinary rifles, is constandly liable to tear, which causes the irregularity in the ball's motion, and defeats the very object for which rifles were intended. The manner in which the percussion cones communicate with the middle of the chambers, causes the powder to explode in one half the time it would if the ignition took place at the end, of, and posterior to the chamber.

As an evidence of the accuracy and effectiveness of this rifle, Mr. Cochran related a bear hunt, in which he took part, a few days since, on the Moose Mountains, in his native state of New-Hampshire. He fired at the animal with the rifle now at the Exhibition, and lodged nine balls in his brain, while he was under full way, at the distance of some four or five rods from him. The bear was brought to the ground, and the nine balls recognized and identified from the others lodged near them, by the grooves made in them by the creeses of the tubes, and by their cylindrical shape. His brother sportsmen who had, until then, deemed themselves in possession of good sporting pieces, expressed themselves in raptures at the superiority of their young countryman's magic rifle.

Another remarkable property in this rifle is, that it has not the least recoil whatever, so that there is not the slightest jar or irregularity in the direction.

The rifle will be fired at Niblo's 500 times in succession this afternoon. The patent right for the rifle and pistol, for the United States, has been sold by Mr. Cochran to the trustees of a company in this city, for $300,000. Richard & Richardson, No. 41, South Street, are the agents for the company, and have a large manufactory at Springfield, Massachusetts, and are selling the rifles faster than they can make them.

Col. Bomford, at the head of the ordnance department, U. S. army, who was present at the Fair, was so much pleased with Mr. Cochran's rifle, that he ordered him to make one, and bring it to Washington for experiment.

The cuts belonging to the treatise on Locomotives, by the Chev. de Pambour, are inserted in this number of the Magazine.

The whole matter belonging to the work will be found accordingly in the June, July and August numbers of this year.

Nicholson's Architecture is also concluded in this number; the whole of this work is also contained in the volume of 1836.

Effects of Electricity on Vegetation.—M. Baric states, that "last year, in the month of July, the lightning struck one of the poplars in my avenue—the fluid breaking off at the time a few branches at the summit of the tree, followed down the tree without breaking the bark, and at last passed into the earth, throwing up two cubic feet of earth. The poplar at the time was about a foot in circumferance: at the present time it is double that size, whilst those near by have made no preceptible increase in size.—[L'Institut, No. 155.]

It was mentioned in 1834 that in a body found on opening the ancient British Tumulus, near Maiden Castle, there was a mass of seeds discovered in the viscera; they have been set by Professor Lindley, who has reared several plants of common raspberry, now bearing fine fruit. This proves that this plant was known at a very early period in England.—[Dorset Chro .]

The following curious experiment has been tried with success on a mountain called Teufelsberg, near the village of Philippsthal, within the Prussian States. It became desirable to get rid of a large rock, and in order to avoid the immense expense of the ordinary means, it was resolved to try the effect of atmospheric electricity. To this end a deep hole was made in the rock and from it was raised a bar of iron 28 feet high. At the first thunder storm which ensued, the lightning was attracted by the iron bar and conducted into the rock, which it shattered to pieces, and was afterwards easily carried away.

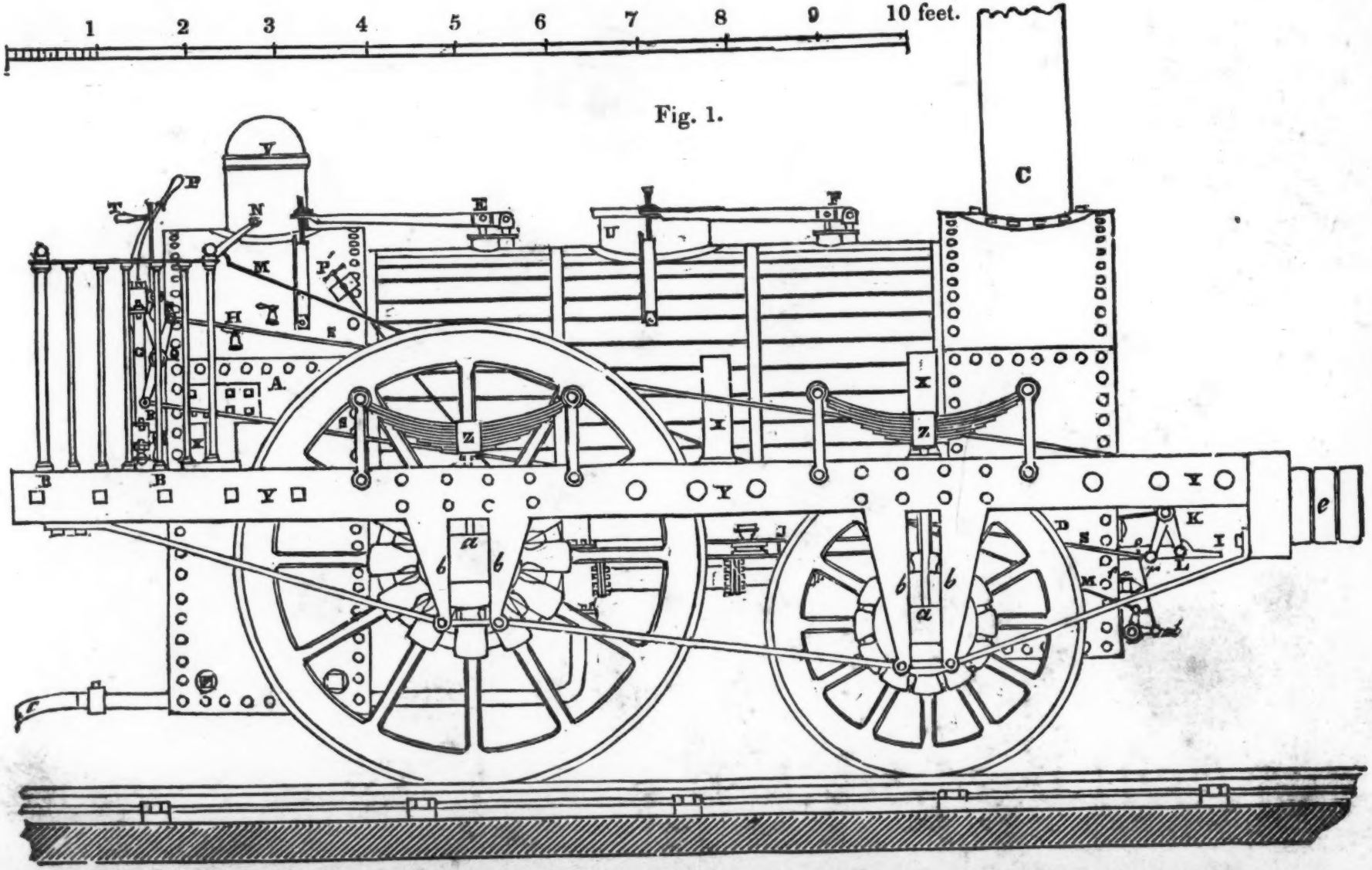


Fig. 1.

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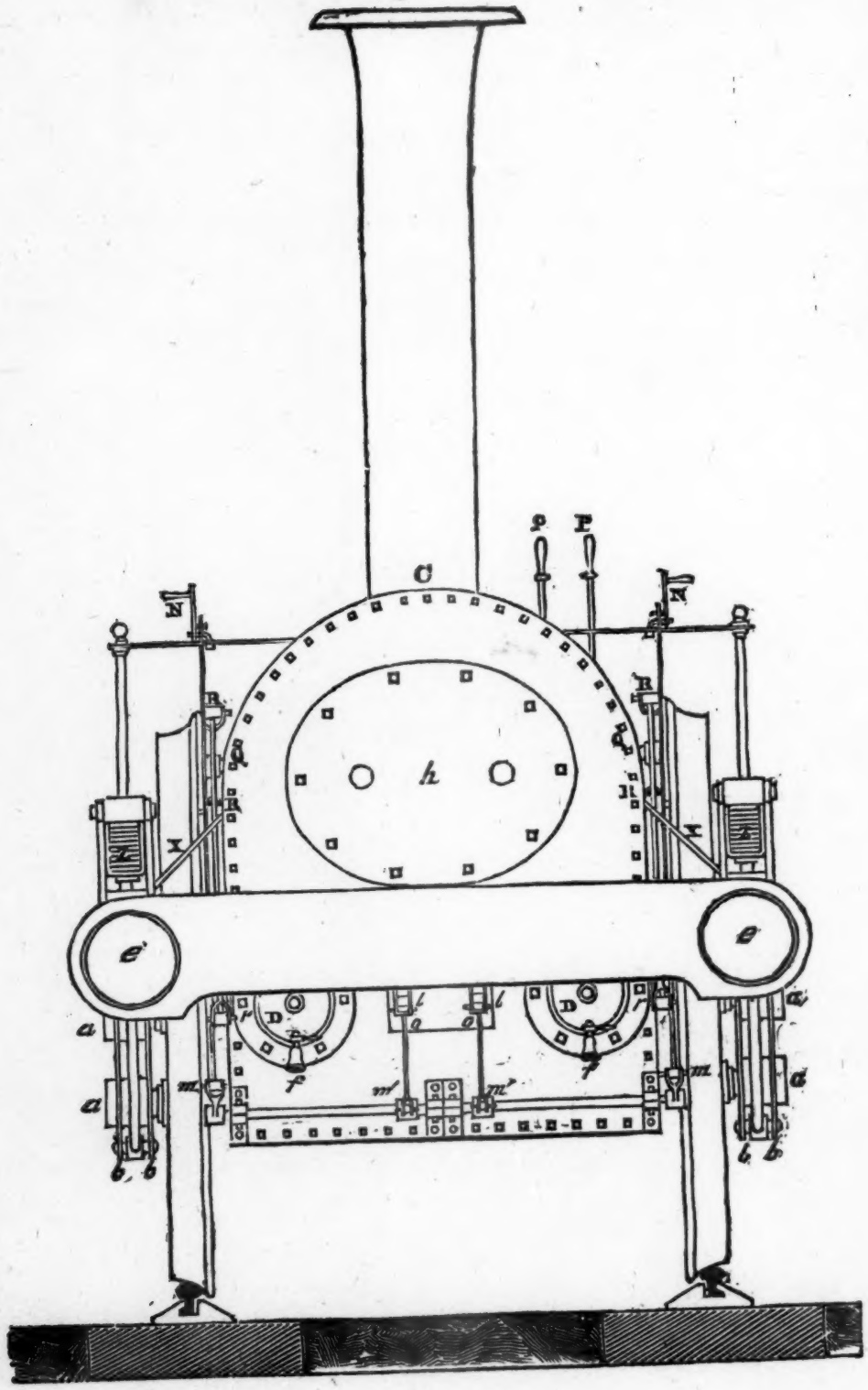
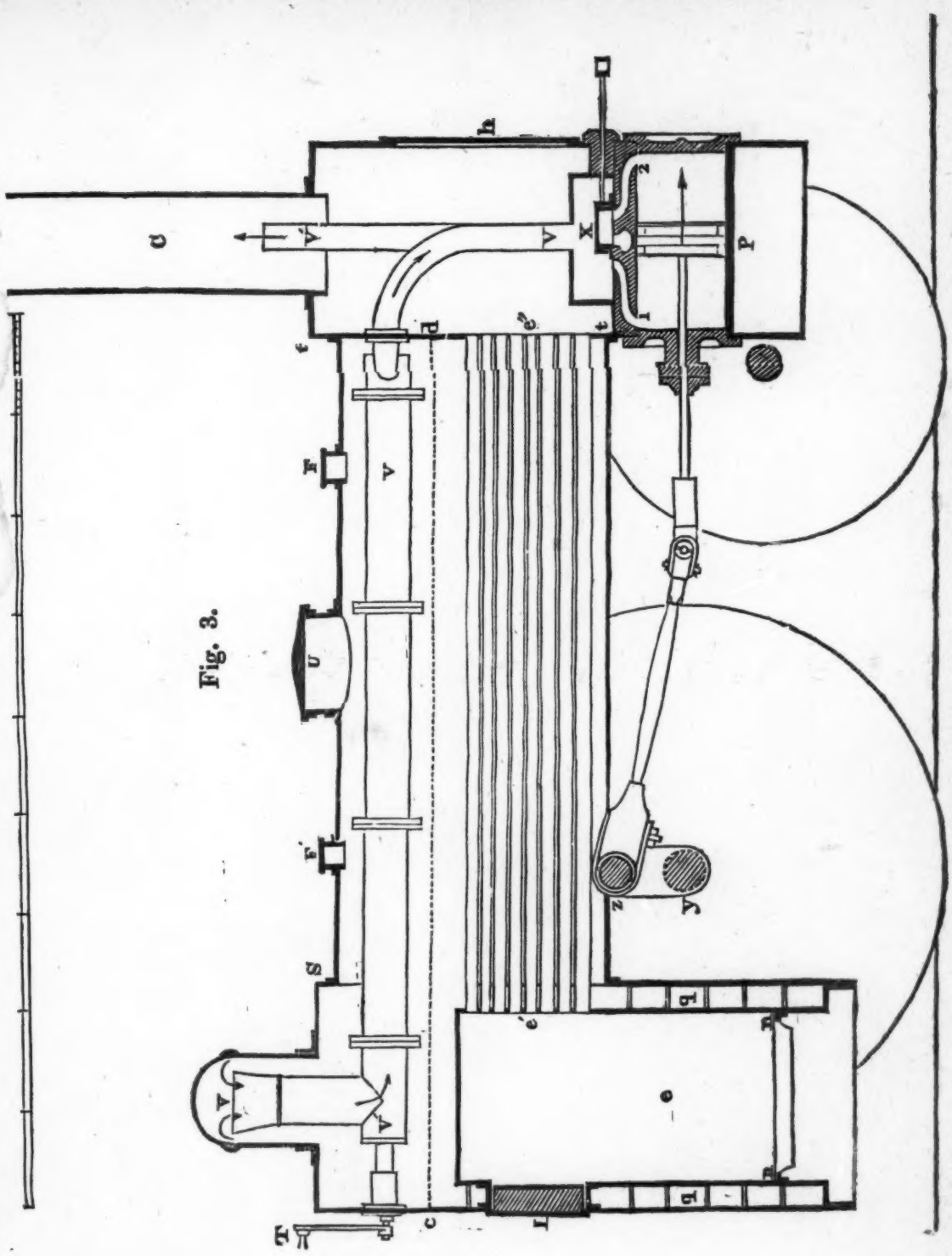
Fig. 2.





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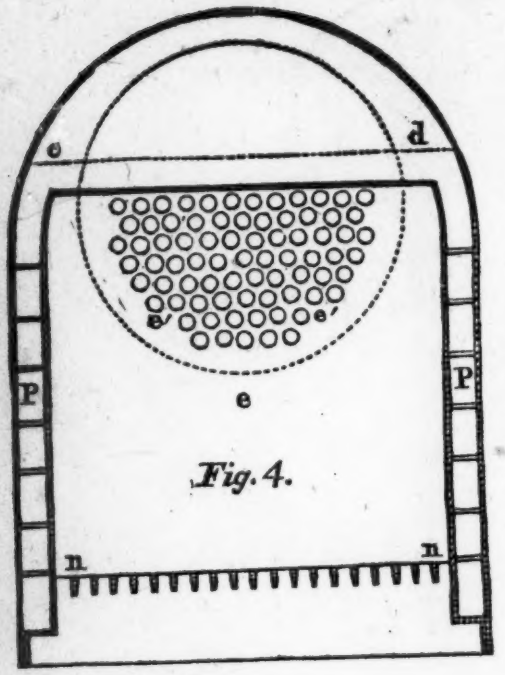

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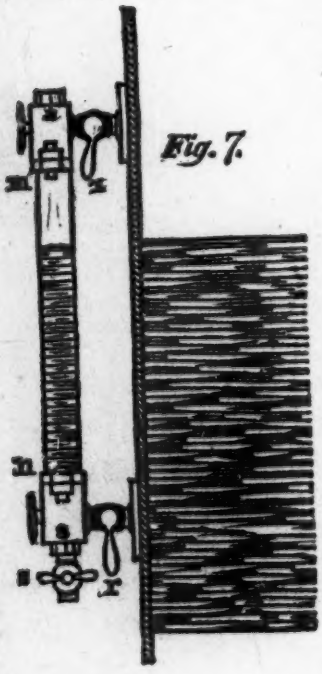
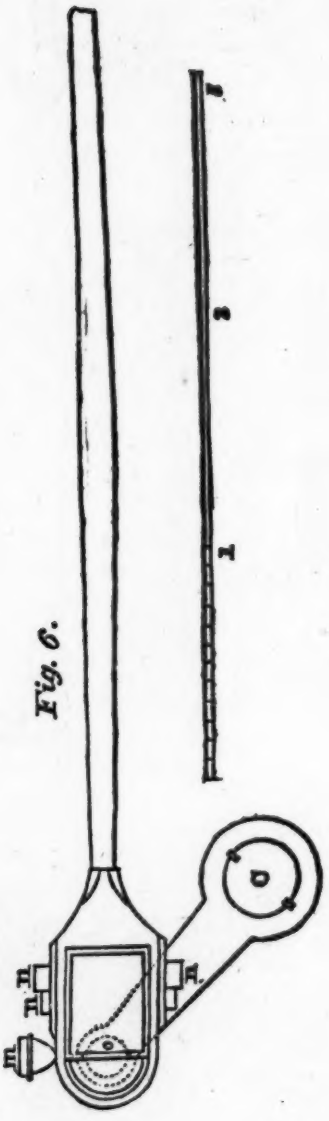


Fig. 7.

Fig 5

Fig. 6.



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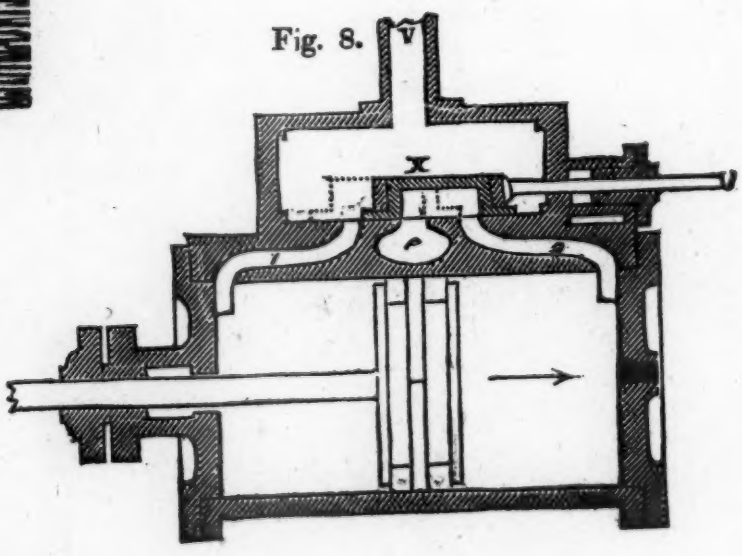
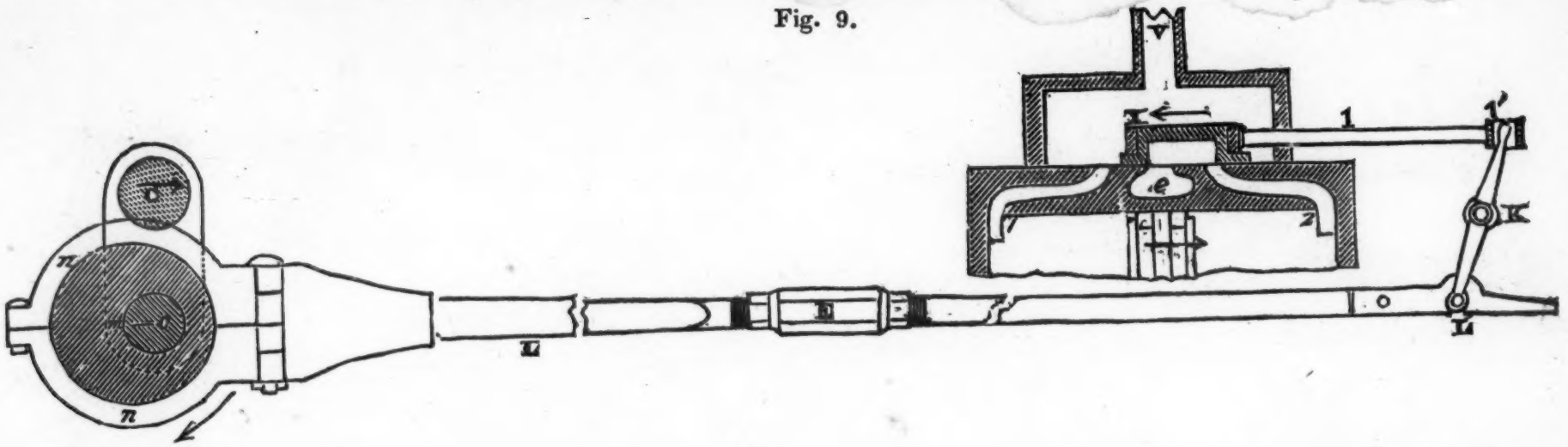


Fig. 9.



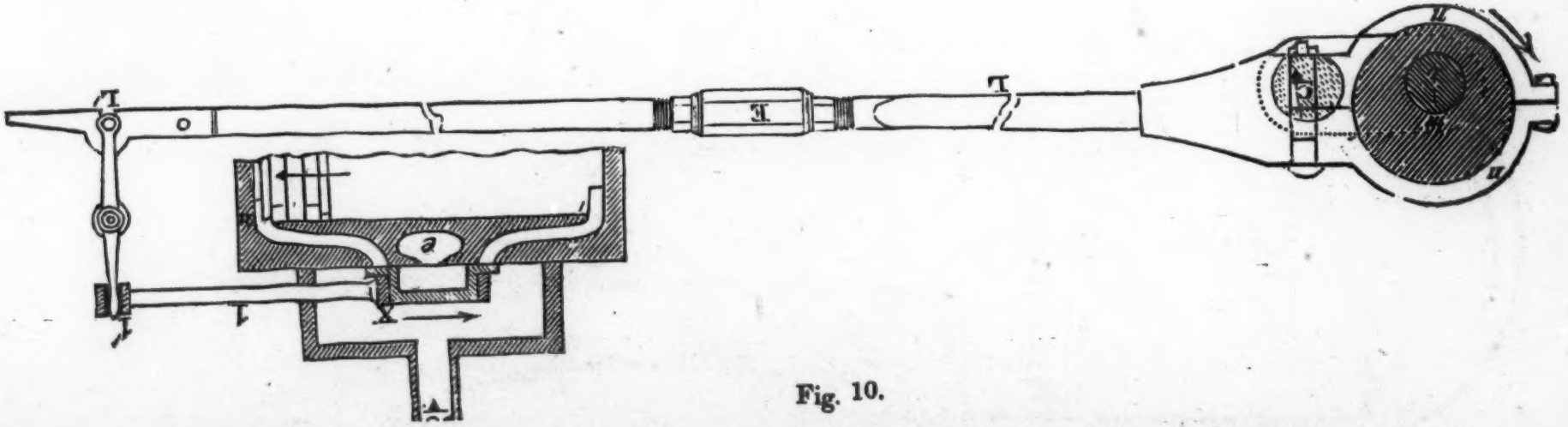
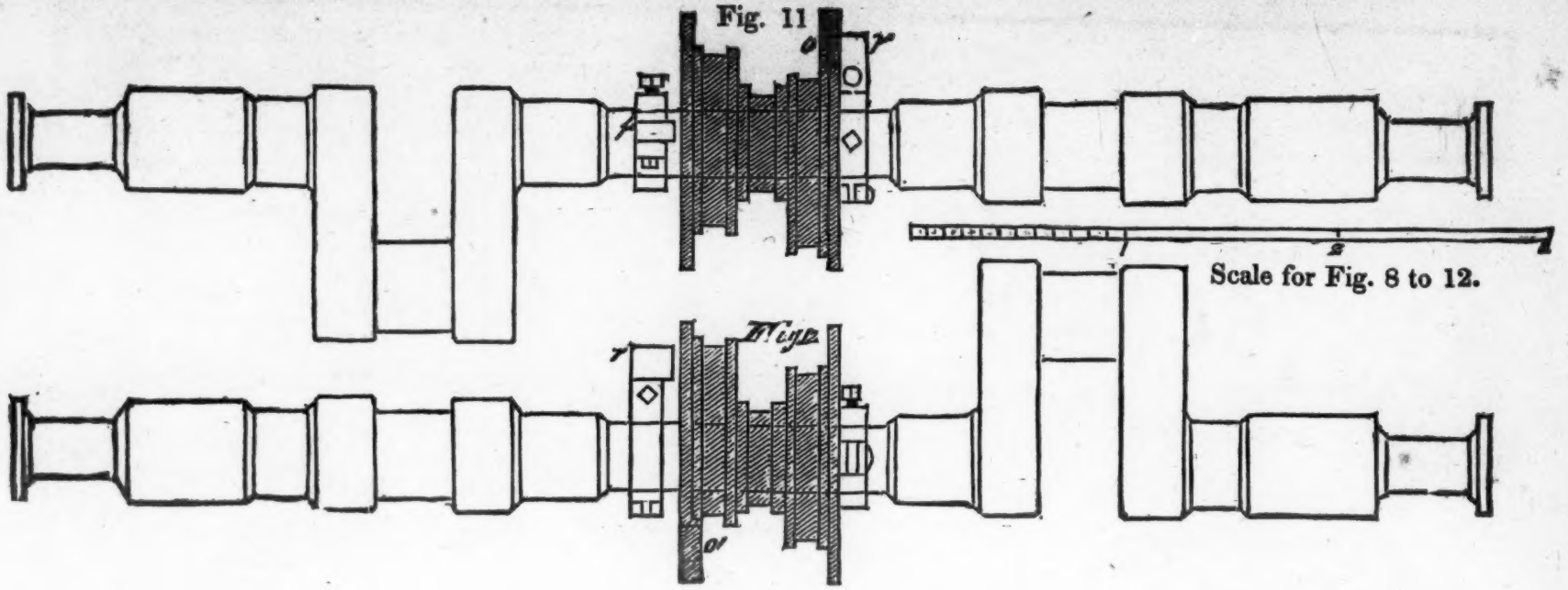


Fig. 10.

Fig. 11



Scale for Fig. 8 to 12.

Fig. 13.

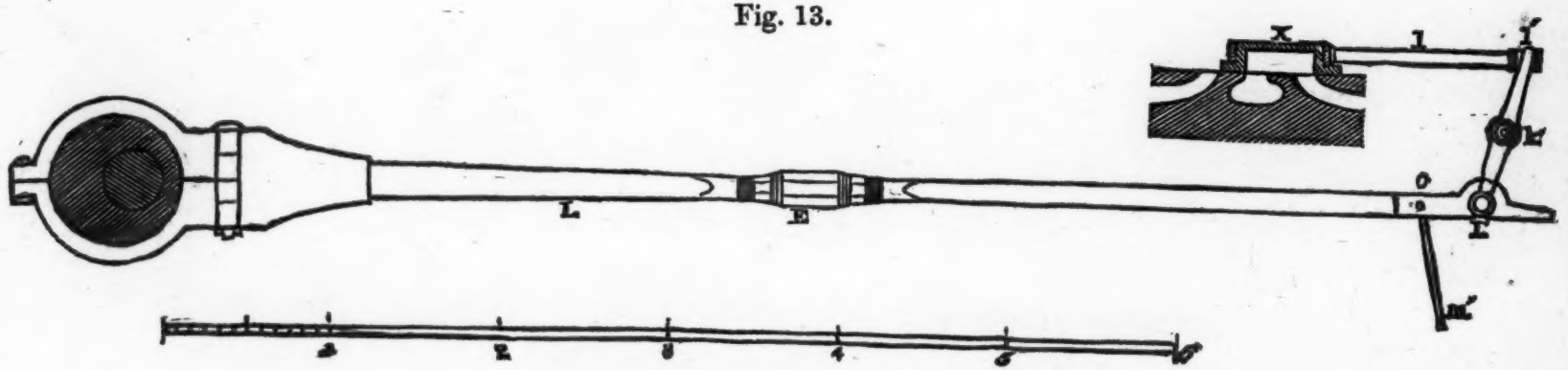


Fig. 14.

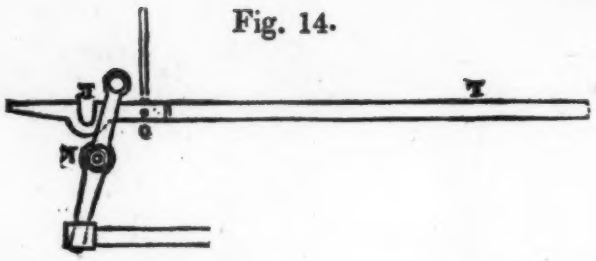
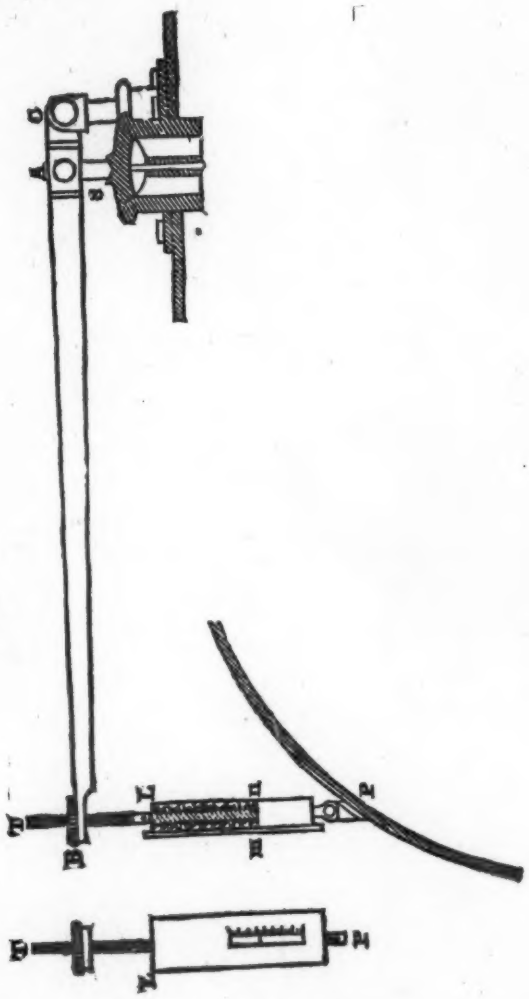


Fig. 15.

Fig. 16.



Scale for Fig. 15, 16, 17 and 19.

Scale for Fig 18.

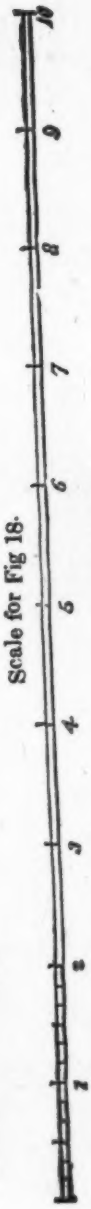


Fig. 18.

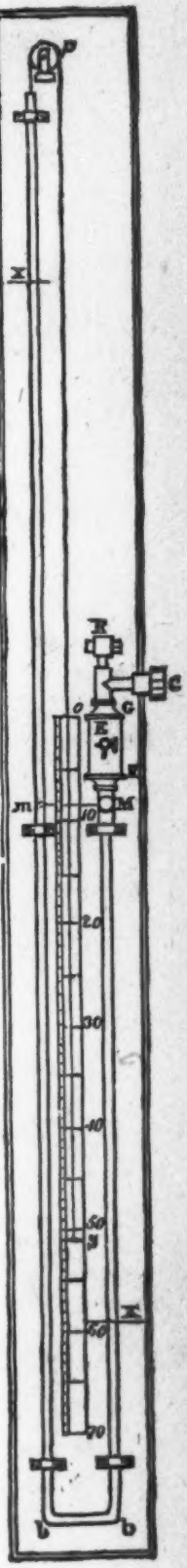


Fig. 17.

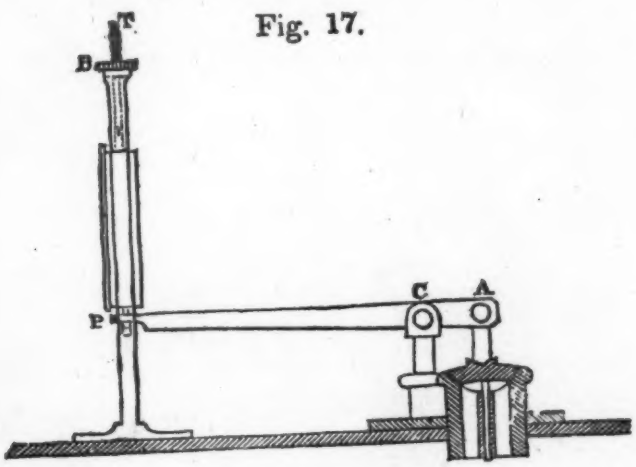


Fig. 19.

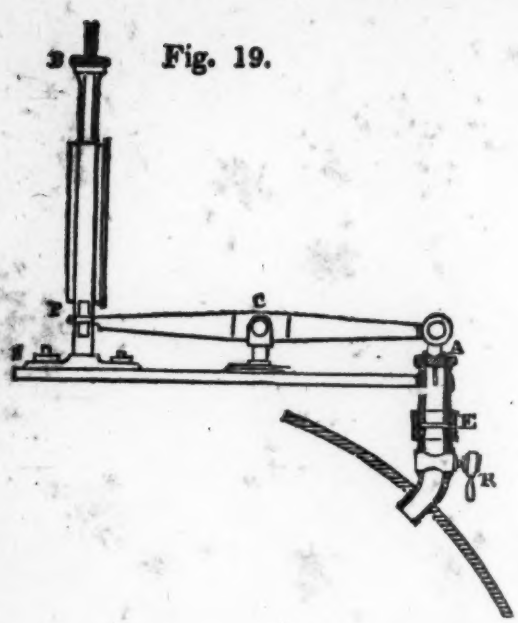


Fig. 20.

Fig. 21.

Fig. 22.

Fig. 23.

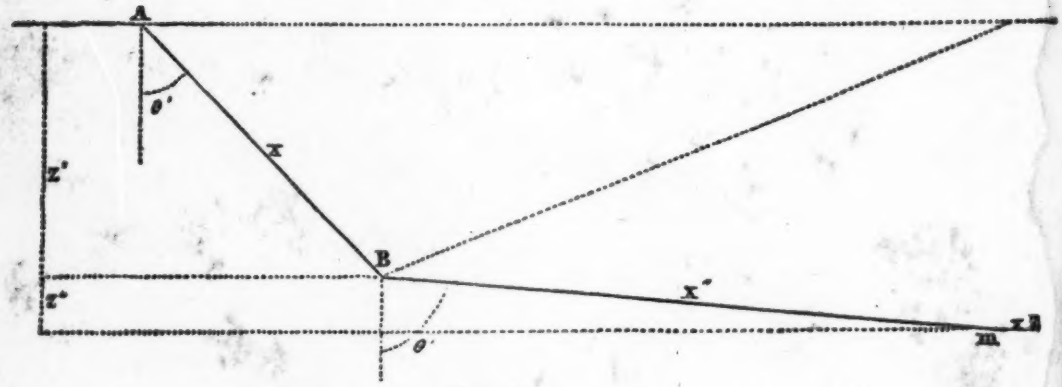


Fig. 24.

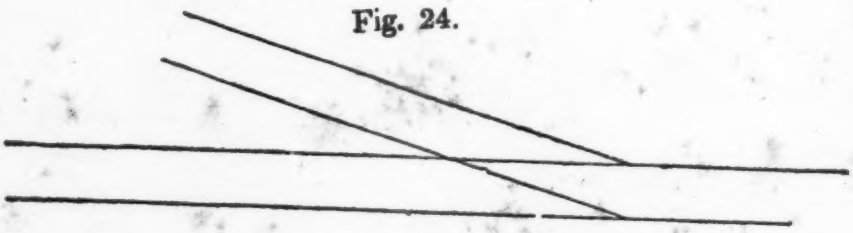


Fig. 25.

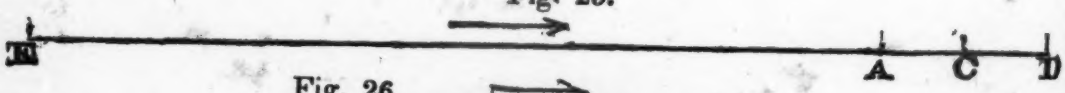
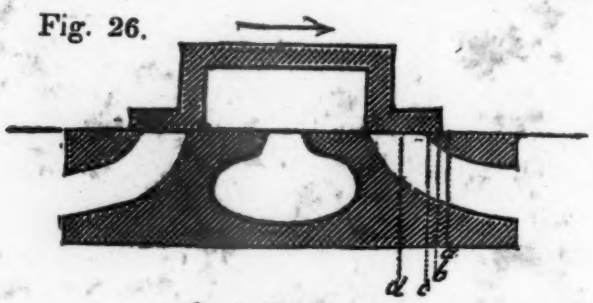
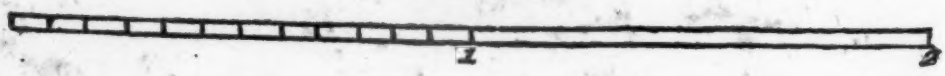


Fig. 26.



Scale for Fig. 26.



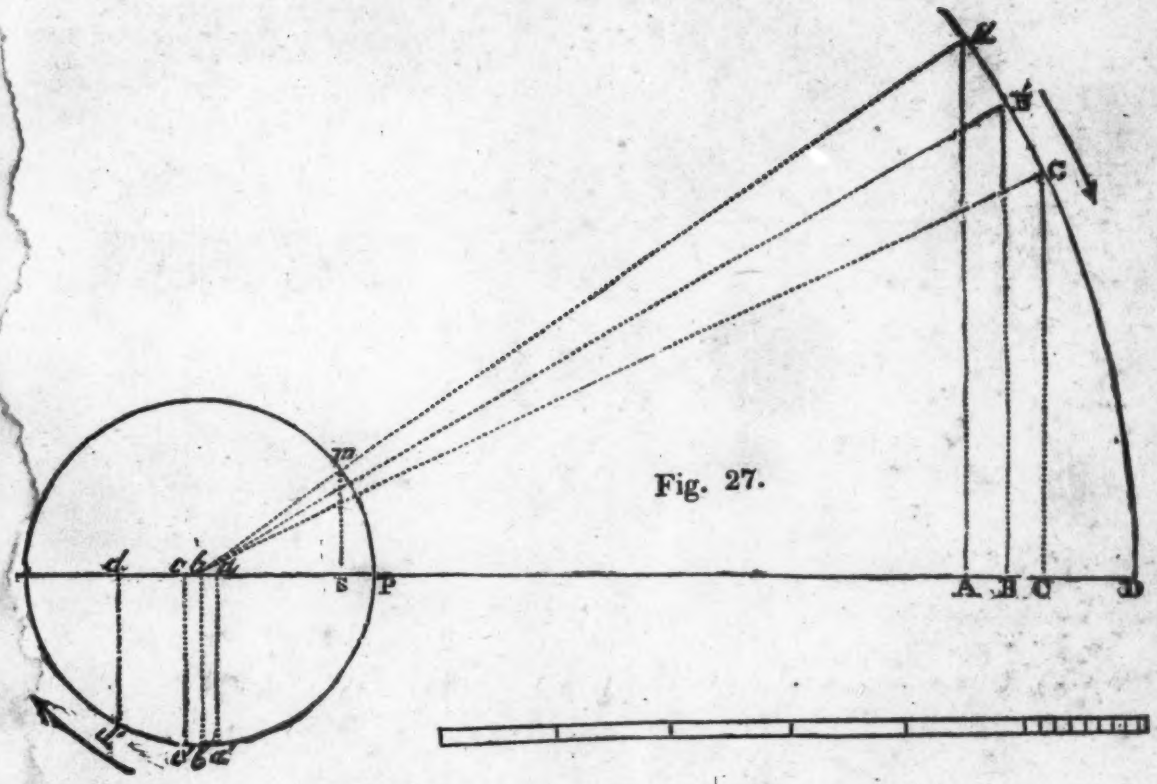


Fig. 27.

Fig. 28.

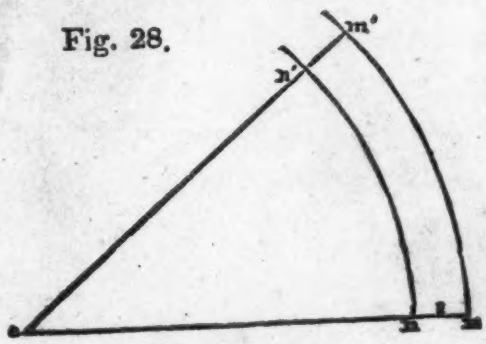


Fig. 30.

Fig. 29.

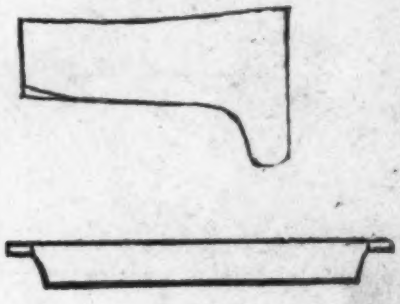


Fig. 31.

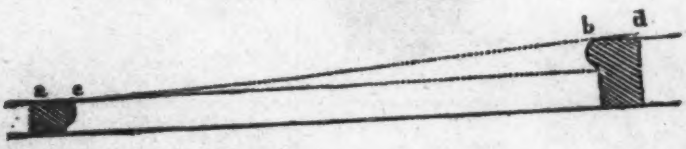


Fig. 32.

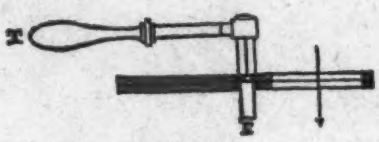


Fig. 33.

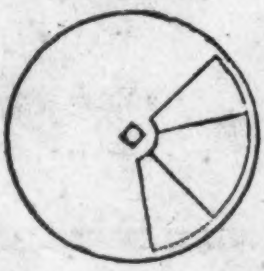


Fig. 34.